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NOTES ON GREEK VASE PAINTINGS
THE CORRELATION OF MAYA AND CHRISTIAN CHRONOLOGY
ARCHAEOLOGICAL DISCUSSIONS (July-December, 1909)

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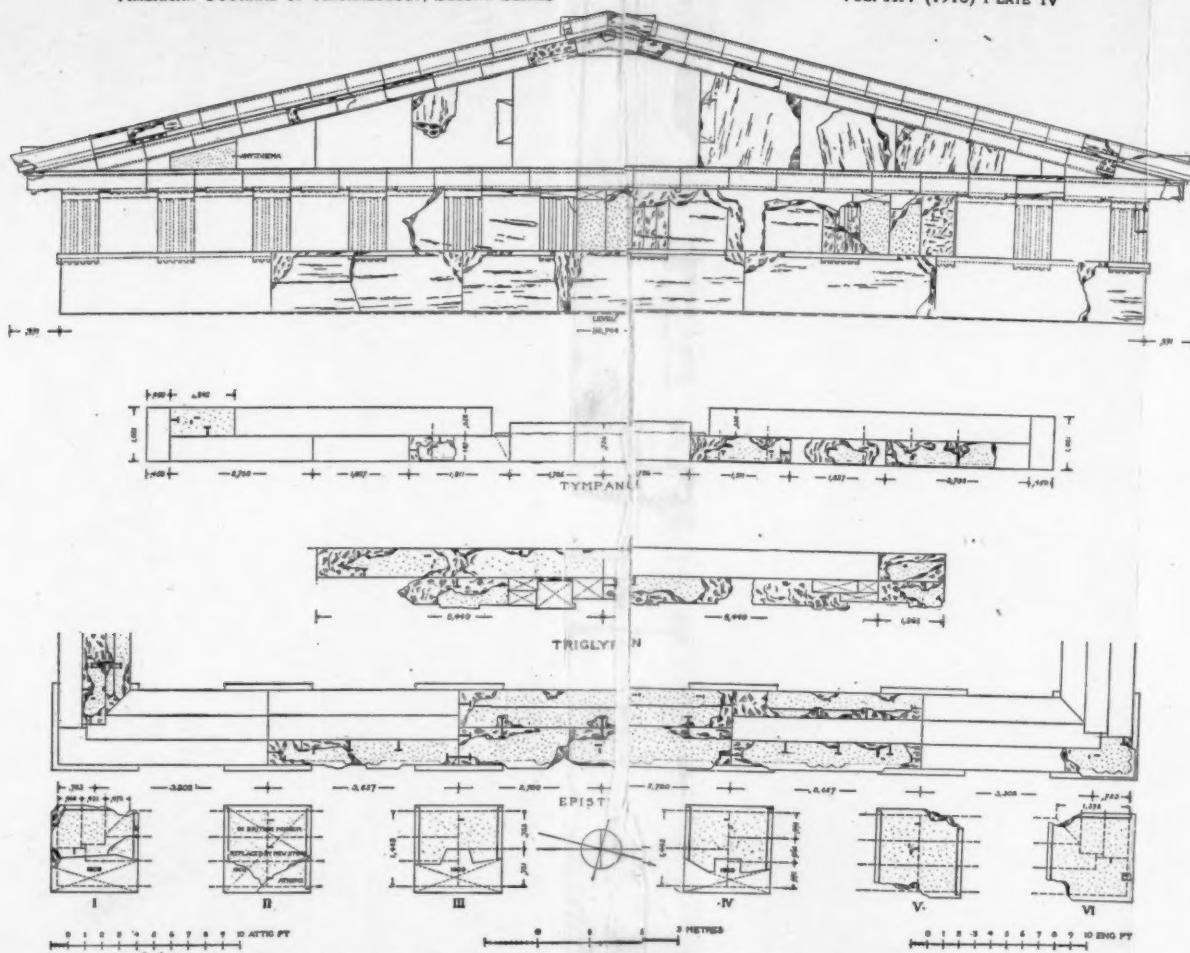
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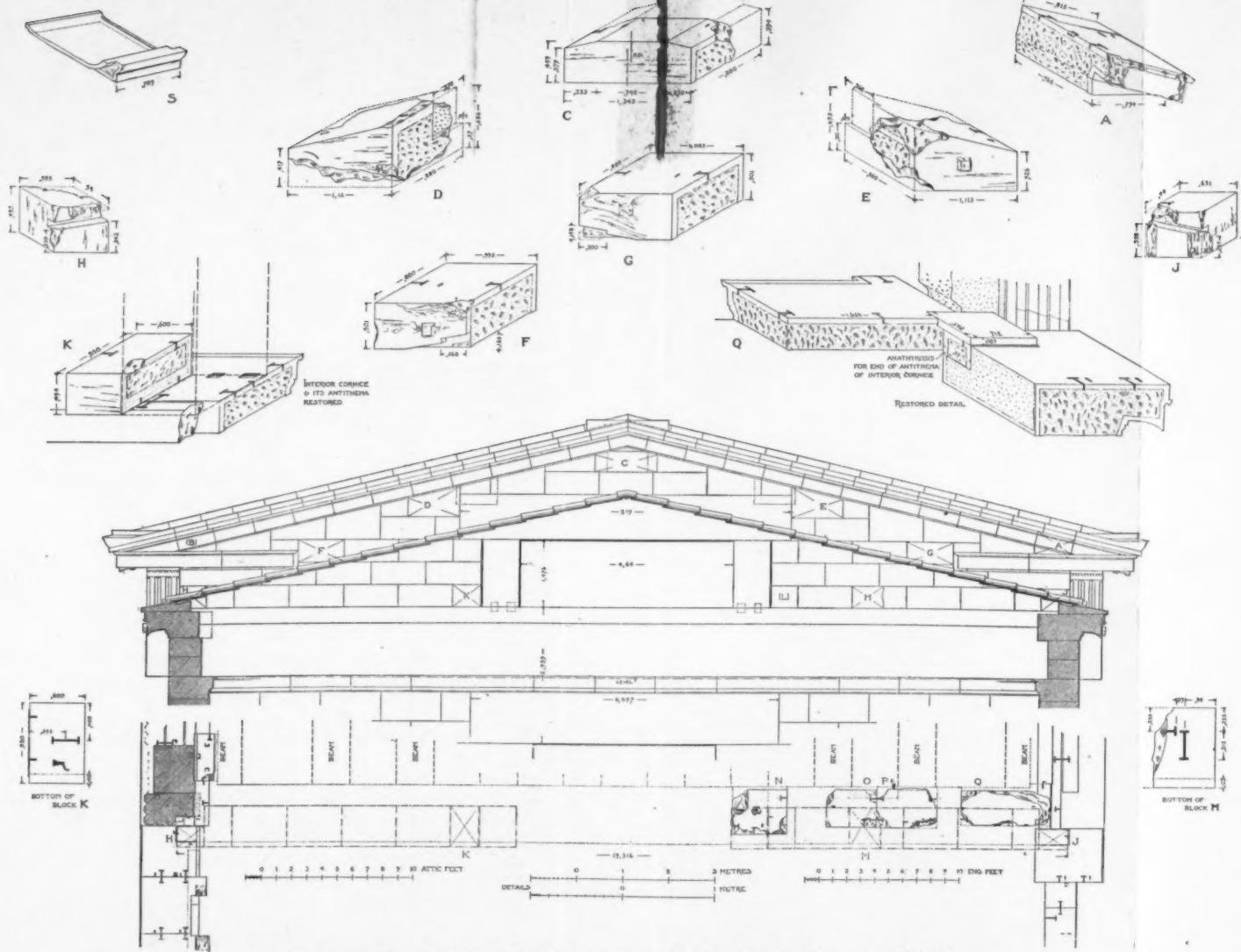
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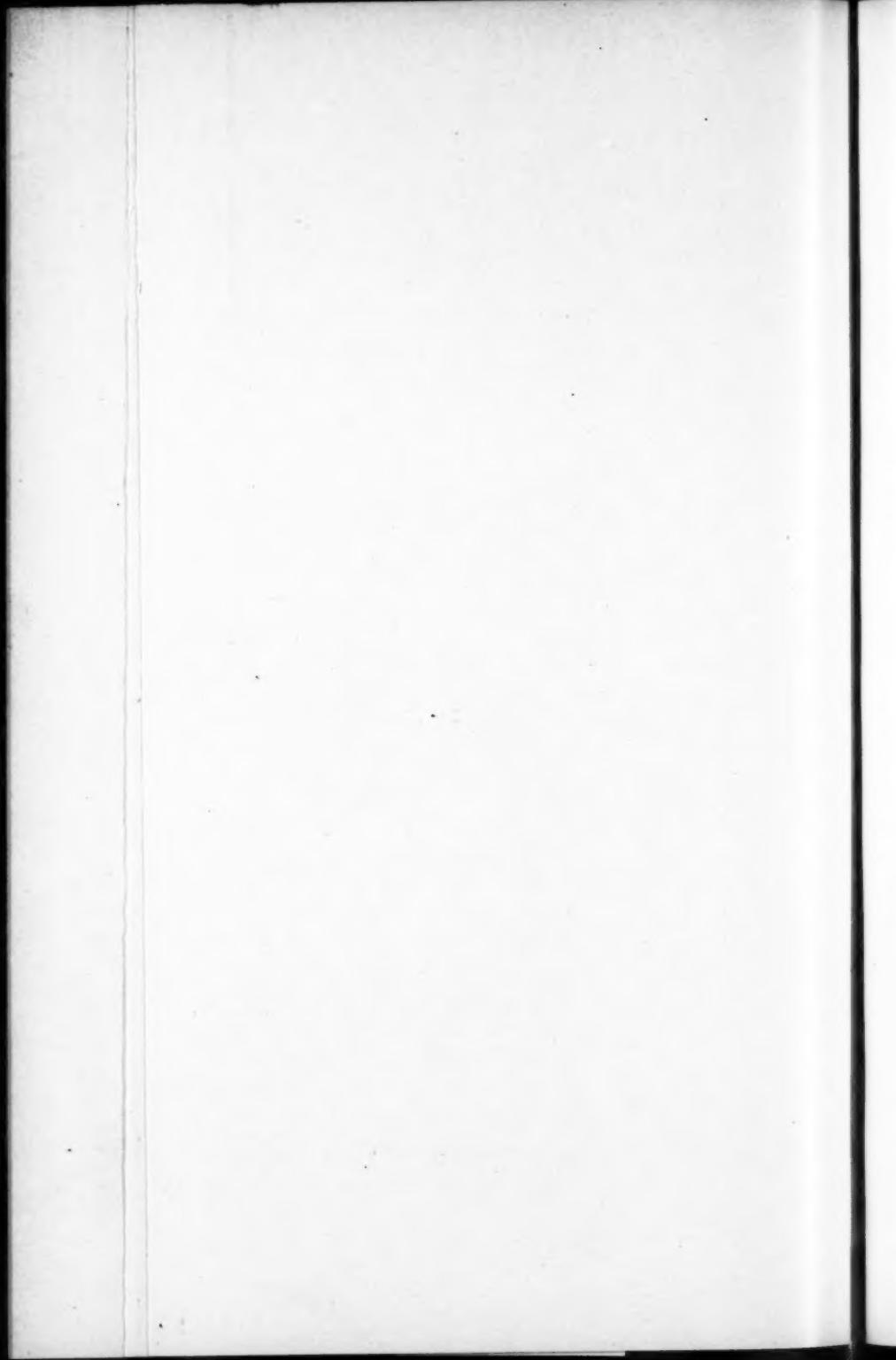


PROPYLAEA: RECONSTRUCTION OF THE SUPERSTRUCTURE OF THE EAST HEXASTYLE





PROPYLAEA: RECONSTRUCTION OF THE GABLE ABOVE THE GATE WALL



American School
of Classical Studies
at Athens

THE GABLES OF THE PROPYLAEA AT ATHENS¹

[PLATES IV-V]

I. THE CENTRAL BUILDING

WHEN Spon and Wheler entered the Acropolis early in the year 1676, they beheld directly above them "a beautiful building, which some regard as the Arsenal of Lycurgus. Perhaps they have their reasons, but I to be sure have mine for not believing them; for I am of the opinion that it is a temple, because it has a façade and a pediment like others." Thus writes Spon,² but Wheler³ rightly assumes that it was the Propylaea. The eastern façade had fallen long before, about 1645;⁴ its remnants must have been mercifully buried by dé-

¹ What was intended to be the final work on its subject, *Die Propylaeen der Akropolis zu Athen* (Berlin, 1882), by Richard Bohn, has left much to be desired. Almost immediately after its appearance, in protest came the masterly articles by Wilhelm Dörpfeld, 'Das ursprüngliche Project des Mnesikles' and 'Über die Gestalt des Südwestflügels' (*Ath. Mitt.* X, 1885, pp. 38–56, pls. II–III; pp. 131–144, pl. V). Recently the American School has begun a detailed study of the building; Mr. Wood has definitely settled most of the still undecided questions in the design of the wings. For the central building we still are accustomed to rely upon Bohn; yet for practically every detail that is not actually *in situ*, Bohn needs to be corrected; and now that the reconstruction of the building has commenced, even small details have become of vital importance. The following is the result of the study of scattered stones on the Acropolis; the subject itself is due to a suggestion by Mr. Hill that two remarkable stones (H and J on PLATE V) might indicate what I have called a projecting tympanum wall. To avoid lengthy references, I mention here the other works which will concern us later: Stuart and Revett, *The Antiquities of Athens*, II, London, 1787, ch. V, pp. 37–42, pls. I–XI; J. Hoffer, in Förster's *Allgemeine Bauzeitung*, VI, Vienna, 1841, pp. 119–125, pls. cccxc–cccxxvi; F. C. Penrose, *The Principles of Athenian Architecture*, first edition, London, 1851, and second edition, London, 1888.

² J. Spon, *Voyage . . . de Grèce*, Amsterdam, 1679, II, p. 106.

³ G. Wheler, *A Journey into Greece*, London, 1682, p. 359.

⁴ J. R. Wheeler, *C. R.* XV, 1901, pp. 430–431.

bris, for they exist in large proportion to this day.¹ But the west façade was then complete; and since the ceiling of the west hall was still in a condition to attract the admiration of Spon and Wheler, its opposite support, the wall with the five gates, must have been in good preservation. We have sketches, showing the view from the west, made before and during the Venetian siege of 1687,² and immediately thereafter Verneda³ described the building and gave some measurements. But this was the last mention of the last remaining gable of the Propylaea. The entire superstructure probably collapsed during the siege, and after the Venetians had retired, Turkish drills⁴ made short work of the fallen remains. Stuart and Revett in 1751–53 saw the columns of the west hexastyle completely preserved;⁵ then, shortly before Dodwell's visit in or about 1806, the four central columns were deprived of their capitals and three upper drums,⁶ and in that condition they still remain. The two angle columns still support the epistylia between them and their antae, and on the north return a part of the frieze remains *in situ*. A fragment of epistyle face, another of its filler, a few blocks of Ionic epistyle returns which backed the Doric frieze, and portions of all three angles of the pediment with their acroterion bases,—these to-day must represent the west pediment. Although this was the last to fall, what we have of the superstructure is practically nothing, and for information we naturally turn to its exact replica, the east façade.

The superstructure of the east façade, though destroyed several years before that on the west, has had a better fate; and it

¹ Bohn, p. 20: "The east front carried a gable, but of this, as of the rest of the superstructure, only a few remains are preserved—some geisa, pieces of sima, and one block of the tympanum wall." The difference at the present time is in part due to the Acropolis excavations of 1885–90.

² Omont, *Athènes au XVII^e siècle*, Paris, 1898, pls. 29, 31, 36, 37.

³ Farnelli, *Atene Attica*, Venice, 1707, p. 316.

⁴ It is to be noted that this was the common fate of the west façade, of the upper part of the central wall, and of the ceiling; of these parts comparatively few fragments are left, and they frequently have been split by drills; so probably all fell at one time. The fragments of the east façade, on the other hand, show fractures only and no drill holes, and are in large part preserved.

⁵ *Antiquities of Attica*, II, ch. V, pl. 1.

⁶ Dodwell, *Tour through Greece*, I, p. 313.

is at this point that the Greek Archaeological Society recently began the restoration of the Propylaea. Here the six¹ columns are practically complete, even to their capitals, except that of the column next the southeast angle; and this is preserved, a portion in the British Museum¹ and a fragment in Athens. Above the columns remain the inner facing of one span of the epistyle, a fragment of the outer face at the northeast corner, and portions of the return epistyla on both sides. The fragments now on the ground are so numerous that a reconstruction is easily possible, and the reassembling of these fragments reveals to us a few important principles of Greek construction and engineering (PLATE IV).²

Each span of the epistyle was normally composed of three beams set side by side—the epistyle face, its *antithema*, or backer, and the filler which lay between. But on account of the width of the central intercolumniation, the beams composing the epistyle here, necessarily half as long again as usual, were strengthened by being made fifty per cent thicker, so that the filler was here lacking; to diminish the weight, moreover, each of these colossal members has much of the useless material hollowed out in the manner of modern steel channel beams, where for some distance above and below the middle the strain from flexure is very slight. Throughout the superstructure we shall meet similar expedients for decreasing the load distributed over the central intercolumniation, which, in Greek Doric architecture, is second in size only to those of the Temple of Apollo at Selinus.³ Both these blocks of the central span are preserved,

¹ *Brit. Mus. Catalogue of Sculpture*, I, p. 260, No. 433.

² PLATE IV shows the reconstruction of the superstructure of the east façade with the original fragments. At the date of writing, August, 1909, nothing has actually been replaced on the building, though columns and walls are being straightened. Such new stones as are now prepared for insertion with the old are shown with their diagonals drawn. The capitals of the columns are shown in their original orientation; I, III, and IV are to be turned so that the original west sides will face east, and V and VI are to have the north sides toward the east. Capital II will be new; the plan of the original abacus I owe to the kindness of Mr. A. H. Smith, Keeper of Greek and Roman Antiquities in the British Museum.

³ Excluding the Olympieum at Acratas, where the epistyla were not beams, but were built up in coursed masonry, supported by the walls which filled the intercolumniations.

the outer face in two pieces; they were the first members of the entablature to be set in place, and therefore could be freely dowelled at both ends to the abaci of the capitals. Then they were clamped to each other at three points along the top and also, an extra precaution, in the vertical planes of the end joints. The epistylia next on the north and south were then lowered into place, pried against the central blocks, to which they were clamped at the ends, then clamped to each other along the top, and dowelled at their only free end. This same process was continued around the angles until the return epistylia had been completed.

The frieze shows similar precautions for relieving the central span of as much weight as possible, and here the attempt is so successful that the epistyle actually supported only the interior cornice and the ceiling; the weight of frieze, geison, and pediment was transmitted directly to the columns. For this purpose the central part of the frieze was composed of beams like the epistyle, merely decorated with triglyphs in relief.¹ A joint between a pair of these beams came exactly over the middle of the central span, as is shown by a dowel and a pry-hole on the epistyle below, 2.720 m. from the axis of either column; the next frieze joints toward north and south are shown by dowels on the epistylia to have been 2.720 m. outside the same two columns. Thus each of the frieze "beams" nearest the centre was a cantilever 5.440 m. long, exactly balanced with its centre above the axis of a column, and to be self-supporting they needed only to be evenly loaded; that south of the centre was laid first and dowelled at both ends. The joints at the ends of these cantilevers, necessarily coming exactly in the centres of metopes, were concealed by cutting back at these points and inserting loose metope slabs in grooves in one of the usual Doric methods. Of the two cantilevers, we have practically the entire length of that on the north; the other lacks only the triglyph and half metope at its south end. The rest of the frieze was built in the ordinary way, a triglyph and a metope-backer combined in a single block, with grooves into which the loose metopes were dropped.

¹ These were noted by Hoffer, *i.e.*, p. 121, and Bohn, *i.e.*, p. 20.

The *antithemata* of this course have an anathyrosis joint with the frieze and were clamped to it; but their west faces, with which nothing came into actual contact, are roughly picked with drafted edges. Of these we have two long fragments which fit together and form a great beam 5.440 m. long; it corresponded exactly to the frieze cantilever south of the centre of the façade, and, like it, was the first block laid in the series (with dowels at both ends); its companion to the north is missing.

Resting partly on the frieze blocks and partly on their *antithemata* were the usual Doric mutular geisa, in blocks 0.907 m. wide, each containing one mutule with a *via* (except the angle blocks); a symmetrical block with a mutule between two *viae* made the transition from the southern blocks on which the *via* was cut at the left of the mutule, to the northern blocks on which it was cut at the right. The plan of the dowel-holes and pry-holes on the tops of the frieze and *antithemata* (PLATE IV) shows that this symmetrical block was exactly in the centre, a rather unusual fact; in the east front of the Parthenon it is as much as nine blocks north of the centre.¹ We still have a Propylaea geison with a *via* cut on each side of the mutule, but its top finish and its height (that of the geisa forming the pediment floor is 1 cm. greater) cause us to assign it to one of the side returns; the central geison block of the façade then is missing.

The tympanum was constructed of orthostates, as was usual on the Greek mainland. Only one stone was known to Bohn,² and he was forced to obtain the slope of the pediment from a lower angle sima block with the acroterion base. We now have five large tympanum fragments, one from the south half and four (two of which fit together to form a single block) from the north, and these allow us to form a more accurate estimate of the slope. This is not the place to consider the problem in all its details: Figure 1 will show the method,—allowing for the horizontal curvature, and fitting together the existing stones by means of dowel-holes and pry-holes, and in a few cases setting-lines, until all find their original places. It

¹ *Ant. Denk.* I, pl. 58 c; east block No. 22.

² Bohn, *l.c.*, p. 20.

will be sufficient to state the slope which resulted, in comparison with those given by Penrose and Bohn :

Penrose	0.241 per metre = 1 in 4.142	$13^\circ 33' 00''$
Bohn	0.237 per metre = 1 in 4.211	$13^\circ 20' 00''$
Present study	0.240 per metre = 1 in 4.167	$13^\circ 29' 40''$

The greatest deviation, the height of the façade to the apex, is 0.011 m. less than that given by Penrose and 0.034 m. more than that given by Bohn.

The numbers on Figure 1 give the order in which the various stones of either half of the pediment were set in place,

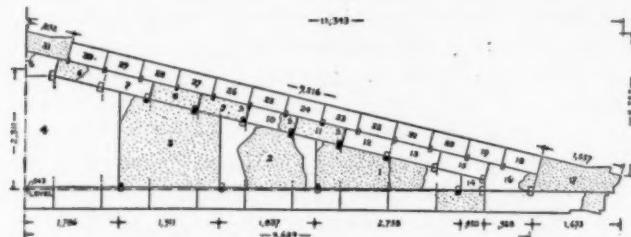


FIGURE 1.—RESTORATION OF EAST PEDIMENT, NORTH HALF.

as evidenced by the dowel-holes and pry-holes. The three tympanum orthostates laid first on each end of the pediment were, as we know by the T-clamps and the anathyrosis joint at their tops, backed by a wall, likewise constructed of orthostates as in the Erechtheum; one block from the south end still exists, and gives the thickness of the backing wall as 0.532 m. In the centre of the tympanum was a space of 3.572 m. to which no extant fragments belong. Though there still remains a tiny piece of the apex geison (5) showing that the two slopes were cut on a single block,—while the sima above (31) had a joint in the centre,—it is not enough to decide whether there was or was not a joint in the centre of the tympanum. We here miss the evidence which the lost central geison block of the pediment floor could have given. But dividing this central space into halves would make each of them much narrower than the other orthostates of the tympanum,¹ whereas giving the full space to

¹ In cases where a joint comes in the centre, the two central slabs are equal to the others at Aegina (Furtwängler, *Aegina*, pl. 34), slightly wider in the

a single stone, as in the "Theseum"¹ and the temple of Nemesis at Rhamnus,² makes it dominate the others, and also, acting as a beam, throw less weight on the long epistyle below. This would account for the exceptional length of the central space in the Propylaea. It seems especially probable when we note from the dowels that, contrary to usual practice, the central space was in this case closed last, so that it would naturally have been done with one stone. On the orthostate next adjoining, moreover, a peculiar cutting appears at the back,

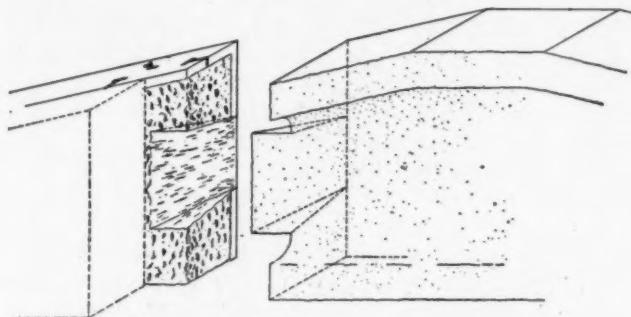


FIGURE 2.—KEY OF CENTRAL SLAB OF TYMPANUM, FROM BEHIND.

as if the central block had been keyed into it to prevent a forward inclination (Fig. 2). A similar case appears in the Parthenon, where the central orthostates, normally 0.42 m. thick, are hollowed out at the back until they are only 0.28 m. thick, their full thickness remaining only at the top and bottom edges; the centre of gravity was then so far from the centre of the bed, that to prevent any tendency to fall forward the orthostates were secured to the backing wall by iron clamps at intervals in the vertical joints.³ We must suppose that this same hollowing, for the sake of lightness, occurred in the Propylaea. The substitution of a stone key for iron can be explained only by the omission of the backing wall over the

Parthenon (*Ant. Denk.* I, pl. 58 c), and much wider at Bassae (Cockerell, *Bassae*, pl. 3).

¹ Sauer, *Das sogenannte Theseion*, pl. 2.

² *Antiquities of Attica*, ch. VI, pl. 2.

³ Penrose, *Principles*, 2d ed., pp. 45–46, pl. 16.

central intercolumniation, decreasing the load even more. This omission of the tympanum backers in striving for lightness was paralleled in the central part of the west pediment of the Erechtheum.¹

Further evidence is to be found when we attempt to bring these masses into equilibrium. It has been noted that the frieze cantilevers, in order to perform their function, needed to be symmetrically loaded. The horizontal geison in short blocks formed an evenly distributed load, and likewise the raking geison, when prevented from slipping by the heavy angle acroterion blocks; only the tympanum therefore affected the equilibrium.² If for a moment we were to suppose that the backing wall were continued behind the central slab of the tympanum, it would be found that while on the outer half of each cantilever the load, with a volume of 3.606 cubic metres, was 9743 kilogrammes, that on the inner half (under the centre of the pediment) would have been, with a volume of 5.397 cubic metres, 14,584 kilogrammes. The centres of gravity, moreover, would be so situated as to increase the disproportion; on the outer half of the cantilever the moment, in terms of volume (in cubic metres) times distance from centre of supporting column (in linear metres), would be 4.495, and on the inner half 7.749. The system of cantilevers, in this case, would have been useless. Statical reasons thus agree with the evidence from the form of the stone key in showing that to decrease the weight the backing wall was omitted at the centre. But the tympanum slab alone, if of the usual thickness, 0.485 m., would obviously have given a bed too narrow for the raking geison blocks above. It is to be noted that in the analogous case of the west pediment of the Erechtheum, the building accounts state that an angle block of the tympanum and the slab between this and the central slab were both 1 foot thick, and that their *antithemata* were likewise 1 foot thick; but the central slab itself had no *antithema*, and was thickened to $1\frac{1}{2}$ foot to give a bed for the geison. Yet the total decrease in weight was considerable, and the reason for this unusual con-

¹ Jahn-Michaelis, *Arz Athenarum, App. Epigr.* 26, ll. 27-40.

² Any inequalities in the distribution of the weight of the central acroterion and the roof tiles could be allowed for in the wide bed above the column.

struction was much the same as in the Propylaea. If the central slab in the Propylaea is likewise thickened 50 per cent, to $2\frac{1}{4}$ feet or 0.736 m., we find that the moment of the central mass on the inner half of each cantilever is reduced from 7.749 to 5.592, more nearly, but not sufficiently, approximating the 4.495 of the outer half. But the very existence of the "key" implies the hollowing of the central slab behind to lighten its weight. The probable amount of this hollowing may be determined as follows: the moment of the mass on the inner half of the cantilever is to be reduced by 1.097 (5.592 - 4.495); the centre of gravity of the half of the central slab concerned is about 1.83 m. from the centre of the supporting column; and $1.097 + 1.83$ gives the amount of marble to be cut out as 0.599 cubic metre. Leaving at the top and bottom a strip about 0.30 m. wide and of the full thickness of the stone, as in the Parthenon, we find that the rest of the surface must be hollowed out to a depth of about 20 cm., or 27 per cent of the original thickness of the slab. In the Parthenon much thinner slabs are cut out to a depth of 14 cm., or 33 per cent of the whole. According to these data I have restored the central slab as in Figure 2,¹ its general thickness, due to the hollowing, is practically that of the ordinary tympanum slabs, but a broad base is added, and at the top a broad shelf for the geisa.

¹ The widened central intercolumniations of some of the Ionic temples of Asia Minor must have required similar precautions, but for them we have little evidence. Great engineering skill alone could overcome the difficulties presented by, for instance, the sixth century temples at Ephesus (restored in *British Museum Excavations at Ephesus*, 1908, Atlas, pl. 13) and Samos, and Hellenistic examples at Ephesus and Sardis, in which the intercolumniations gradually widened from angles to centre, where the span is 8.57 m. at Ephesus! In a later type, the central intercolumniation alone was widened, as in the Propylaea at Athens; at Magnesia it was $1\frac{1}{2}$ times the usual intercolumniation (5.25 and 3.94 m., Humann, *Magnesia am Maeander*, p. 45), at Alabanda $1\frac{1}{2}$ times (3.794 and 2.710 m., unpublished details), somewhat less at Aizani (Texier, *Asie Mineure*, I, pl. 28) and Aphrodisias (though not so restored in the publications). At Magnesia alone we have the evidence; a doorway was cut in the centre of the tympanum, 1.35 m. wide and 2.45 m. high (Humann, *i.e.*, pp. 47, 60, 67), greatly relieving a span which was about as great as that in the Propylaea. In Graeco-Roman work in Asia Minor, the central epistyle was frankly removed and an arch substituted for it, as at Termessus (Lanckoronski, *Städte Pamphyliens und Pisidiens*, II, pl. 4), the triumphal arch at Damascus, and later work in Syria (H. C. Butler, *Architecture and Other Arts*).

Our fragment of the apex geison preserves at the top the two slopes cut on the same stone, but the bottom is broken away. When, in other buildings, the tympanum had a central joint, such a geison had its bottom cut as a saddle fitting over the joint.¹ But when the tympanum had no central joint, as in the Propylaea, such a geison seems to have been a pentagon with a wide base formed by the apex of the tympanum, which was truncated to receive it; this we find in the "Theseum,"² and an even more important analogy occurs in the Propylaea themselves, where in the gable which backs the east portico the apex of the tympanum is preserved with the same truncation (PLATE V, C). The central orthostate of the tympanum then assumes the hexagonal shape shown in PLATE IV. The first raking geison laid was this at the top of the pediment, dowelled on both sides; then the blocks on each side were lowered into place with tongs, pried against it, and dowelled only at their lower ends. Thus were set stones Nos. 6 to 13. Next came a small block in the angle of the tympanum, No. 14, against which both the tympanum slabs and their backers stopped, so that it must have been 1.021 m. from front to back; we have the backer which stopped against it at the south end of the tympanum (see PLATE IV), with a joint 0.318 m. high,³ which exactly fits the slope where a preserved setting line on a mutular geison determines the position of the corresponding joint at the north end of the tympanum. After geison No. 15 the combination block 16, of which we have a small piece, came; it is restored on the analogy of a similar block in the gable above the gate wall (PLATE V, A). The angle block No. 17 was laid last and dowelled from the back with the special T-dowel used at angles.⁴ The construction of the block must here be specially noted; to avoid a feather edge, the end block of the raking geison, instead of being cut on the angle horizontal geison below, as in the "Theseum," Erechtheum, temples

¹ Furtwängler, *Aegina*, pl. 34; Cockerell, *Temple at Aegina*, pl. XI, 7.

² Sauer, *Das sogenannte Theseion*, pl. 2; Durm, *Constructive Details der griechischen Baukunst*, Berlin, 1880, pl. 1.

³ It has a relieving surface on the bottom as on the tympanum slabs, showing that it was set on the pediment floor and not on other courses, as in Figure 2, for instance.

⁴ Cf. *A.J.A.* X, 1906, p. 51.

at Aegina and Bassae, etc., is cut on the same block as the angle sima, leaving the top of the horizontal geison flat. The same construction was carried out in the Parthenon,¹ but there the angle block has a rebate into which fits the sima next above. In the Propylaea no such rebate occurs (except for the overlap at the back of the sima); sima and geison joints both coincide at the angle block and are spaced from it.

In the case of the raking sima blocks the process was reversed; the first block laid was this at the angle, and then the blocks were successively pried from above and dowelled at the upper ends, the lower ends overlapping for about 10 cm. With the positions of the lower angle and the apex fixed, 11.343 m. apart horizontally and 2.722 m. vertically, the length of the slope is 11.655 m. An apex sima measures 0.892 m. along the top; the lower angle sima is 1.557 m. Subtracting these two abnormal simas from the slope, we have 9.216 m. to be divided into even lengths. Many of these ordinary blocks are preserved; complete ones measure 0.702 m. and 0.705 m.; our total would allow thirteen such blocks, with average lengths 0.709 m. Each apex sima was cut with half of the acroterion base, and these were clamped together at the top; they extended back much farther than usual, not merely to the first cover tiles, so that, as at Aegina,² the cover tiles fitted into cuttings in the sides of the acroterion base. It is probable that they extended back so far as to counterweight the forward overhang, on account of the thin tympanum below. It is noticeable that all three acroterion bases were of the forms found at Aegina; probably similar sculptured acroteria were intended, griffins on the rectangular bases at the lower angles, and a great floral acroterion on the flat part of the base at the apex, with a heraldic support on the saddle-like projection behind; we know that such floral acroteria were used on the Parthenon.

The profile chosen for the sima was the ovolo, bounded by a fascia below and a simple moulding above, which had appeared for the first time in the Parthenon and the Temple of Athena Nike; it occurred elsewhere, but only in the Periclean period,

¹ Penrose, *Principles*, pl. 17.

² Furtwängler, *Aegina*, pls. 35, 47; these blocks formed the evidence for Cockerell's "hypaethron" (*Temple at Aegina*, p. 18, pls. 5, 6).

in the temple of Nemesis at Rhamnus, the Porch of the Maidens in the Erechtheum, the Periclean Telesterion at Eleusis, and the Argive Heraeum. It was, however, the natural outgrowth of the Doric profile of the early Corinthian tiles and their marble copies as on the Temple of Zeus at Olympia and the Temple of Aphaia at Aegina.¹ But the decoration was unique. Instead of following the development of the anthemion, as in the Parthenon and the Temple of Athena Nike, Mnesicles employed the egg-and-dart,² which had formerly been left to minor mouldings and capitals of columns; he probably chose it because its lines fitted more closely the profile of the sima. He was imitated only once, in the Porch of the Maidens of the Erechtheum; the few times that the profile was afterwards used, in Eleusis and the Argive Heraeum, the decoration went back to the anthemion type.

Novelty is found also in the method of the disposal of rain water. As was usual in the Periclean period, the sima was returned along the flanks (the Parthenon and the temple at Bassae were exceptions). But instead of the universally employed lion-head water spouts, the sima was pierced with triangular holes by cutting out the background of ornament, through which the water flowed (see Fig. 7).³

This same cutting out of the ornament in silhouette for the disposal of water had appeared long before on the eaves sima of Temple C at Selinus⁴ and at Metapontum,⁵ and soon after the middle of the fifth century in a building at Olympia.⁶ After the Propylaea, the same scheme was copied in the egg-and-dart sima of the Porch of the Maidens.⁷

¹ Schede, *Antikes Traufleisten-Ornament*, Strassburg, 1909, pp. 12-13.

² See Penrose, *l.c.*, pl. 31, and Bohn, pl. XIV, 7.

³ See Bohn, pl. XIV; Penrose, 2d ed., p. 68, Fig. 9.

⁴ Dörpfeld, Gräber, Borrmann, Siebold; *Über die Verwendung von Terrakotten am Geison und Dache griechischer Bauwerke*, 41^{stes} Winckelmannsprogramm, Berlin, 1881, pls. II, 1, III; Durm, *Baukunst der Griechen*, 2d ed., p. 135.

⁵ Durm, *Baukunst der Etrusker*, 2d ed., p. 80.

⁶ Olympia, *Ergebnisse*, II, pl. 120, pp. 195-196. Here, however, a groove cut deeper than the other perforations conducted the water to the centre of each tile only, and this outlet was masked by a Gorgoneion as a false spout.

⁷ Inwood, *Erechtheion*, pl. 1 (in pl. 2 he wrongly restores lion heads), and the restoration by Ginain in D'Espouy, *Fragments d'Architecture antique*, I, pl. 15.

We now come to the consideration of another series of blocks which at present are scattered in the Propylaea and on the ground to the eastward. These also belong to a gable, the tympanum of which was, however, constructed not of orthostates but of coursed masonry, typical of Magna Graecia rather than of Greece itself. These blocks originally formed a part of the Propylaea, but (with one or two exceptions to be noted) have hitherto found no place in any restoration of the building. The foregoing pages leave no vacancies to be filled in the façade pediments; Dörpfeld identified the remains of the half gable of the southwest wing; and there remains for these additional blocks only the upper part of the wall which contains the five gates.

It was by means of this gate wall that Mnesicles overcame one of the greatest difficulties with which he had to contend. The Eleusinian copy of the central building, probably built under Antoninus Pius,¹ shows a scheme which may well have been a preliminary idea of Mnesicles; the whole, by means of a great platform, was built on one level, and the only gables were those on the two façades.² But one of the beauties of the Athenian Propylaea, as actually carried out, is that the rooms at different levels fit the natural ascent to the Acropolis. The plan called for hexastyle porticoes on inside and outside, of

¹ The colossal bust from the façade pediment was at first supposed by Philios (*Eleusis*, 1896, p. 59) to be that of Antoninus Pius. Frazer (*Pausanias*, vol. II, p. 506) and afterwards Philios ('Ελεύσις, 1906, p. 82) thought that the building was erected by Hadrian. But the bust is not that of Hadrian, and I identify it with Antoninus Pius; the latter emperor, moreover, seems to have carried out extensive repairs at Eleusis at the instigation of the rhetorician Aristides. (Schol. on Aristides, ed. Dindorf, vol. III, pp. 308-309: Ἀντωνίου δὲ βασιλέως, ἐφ' ϕ' Αριστεῖδης ἦν . . . τὸν δὲ Ἐλευσῖνον πεῶν πολυτελῶς ἐπεκεῖσεν.) This passage may, however, refer to M. Aurelius Antoninus, with whom Aristides was particularly influential (as in the case of the rebuilding of Smyrna after the earthquake of 178 A.D.), and who was also active in Eleusis, as is shown by inscriptions. Three fragments of the epistyle of the Eleusinian Propylaea (unpublished except by Lenormant, *Recherches archéologiques à Éleusis*, 1862, p. 46, of whose three fragments I have seen only one, with the Ή; the two others are not given by him) have remains of six colossal letters. These are sufficient to show that the dedicatory inscription was in two lines, in the second of which stood the name of M · A[ὐρῆλος] 'Αντ[ιού]ΝΟC, evidently as the dedicator of the building begun by his predecessor, whose name would have occurred in the first line of the inscription.

² *Antiquities of Attica*, ch. II, pl. 11.

exactly the same order, and therefore of approximately similar heights, with the result that the roof of the eastern portico had to be raised 4½ Attic feet higher than that of the western hall. The break between the two roof levels was made at the gate wall, which was carried up high enough for the purpose and formed a third gable, with a visible tympanum which required finished blocks.¹

The present height of the gate wall is that of the lintel above the great central gate. The existing side walls enable us to

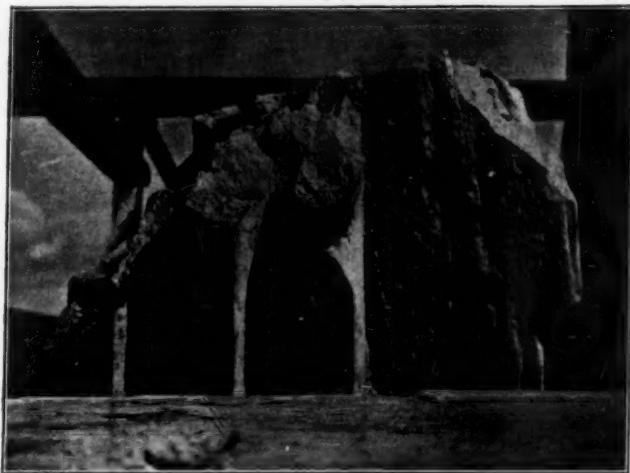


FIGURE 3.—ANGLE TRIGLYPH AT NORTH END OF GATE WALL.

restore on the gate wall,² an *epikranitis* course carrying the profile of the abacus of the anta capitals along the east face, backed by the interior cornice of the west hall; then the high orthostates in alignment with the epistyle *antithemata* of the east portico, faced on the west by the beams and *lacunaria* of the lower west ceiling. Opinions as to the construction above this point differ widely, for the following reason: The entablature of the east hexastyle is carried along the north and south

¹ See, for general appearance, Bohn, *l.c.*, pls. IV, VI, VII, VIII.

² See Figure 4 c. Of the courses here named only a few fragments of the *epikranitis* of the east portico are known.

sides only so far as to include five triglyphs, and then returns inward nearly in line with the middle of the thick gate wall.¹ The angle triglyph at the northwest corner is still *in situ* (Fig. 3). Upon examining it we notice, first, the weather line² left by the lower west roof tiles, which were cut to fit around it, showing that here at least the architect did not hesitate to allow his frieze to disappear gradually under the roof;³ second, that the triglyph is complete, not partly joint surface and partly finished like that on the return from the west hexastyle;⁴ and finally, that this triglyph has a slot to receive a metope, so that we seem to have a Doric frieze, and therefore a wall face, in the plane of the angle triglyph; that is, above the middle of the gate wall. On account of this triglyph and metope slot, Penrose⁵ restored a complete Doric frieze along this wall, though necessarily most of it would be below the roof of the west hall. Bohn⁶ preferred the other alternative and, ignoring the metope slot, carried a blank wall up to the edge of the triglyph. In Figure 4 appears, three times repeated, the section of the present lintel of the central gate (heavily outlined), and behind it the trace of the return of the entablature on the north flank (in broken lines); the bottom of the triglyph (which inclines inward 6 mm.) is only 0.724 m. from the east face of the gate wall. The structure above the lintel is shown as variously restored (*a*) by Penrose, (*b*) by Bohn, and (*c*) as in the present study. It will be seen that Penrose subtracted 0.065 m. behind the wall to allow a bearing for the slabs between the ceiling beams of the east portico, and restored a tympanum set back in the metope plane as in the east façade, 0.072 m. behind the triglyphs, so that his wall would be only 0.587 m. thick.⁷ Bohn made the wall 0.653 m. thick, setting it back on the plane of the metope, but keeping its east face flush with

¹ Bohn, *l.c.*, pl. VI.

² Bohn, *l.c.*, pl. XV, 5.

³ Even at the lowest point of the slope the triglyph was buried to a height of 0.358 m.

⁴ Bohn, *l.c.*, pl. XIV, 9.

⁵ *Principles*, pl. 29.

⁶ Bohn, *l.c.*, p. 20, pl. VIII.

⁷ In his first edition, Penrose mistook the position of the angle triglyph and also drew the gate wall one foot too thin; the latter he attempted to correct in his second edition, merely by adding a figured dimension; the fact that his tympanum wall as drawn on his plate 30 scales 0.770 m. may, therefore, be neglected.

the gate wall below, which made it necessary to build over the ends of the ceiling beams. Yet even this 0.653 m. seems too slight; all the coursed walls of the Propylaea have a thickness, with *werkzoll*, of 0.880 m.;¹ and that such a thickness

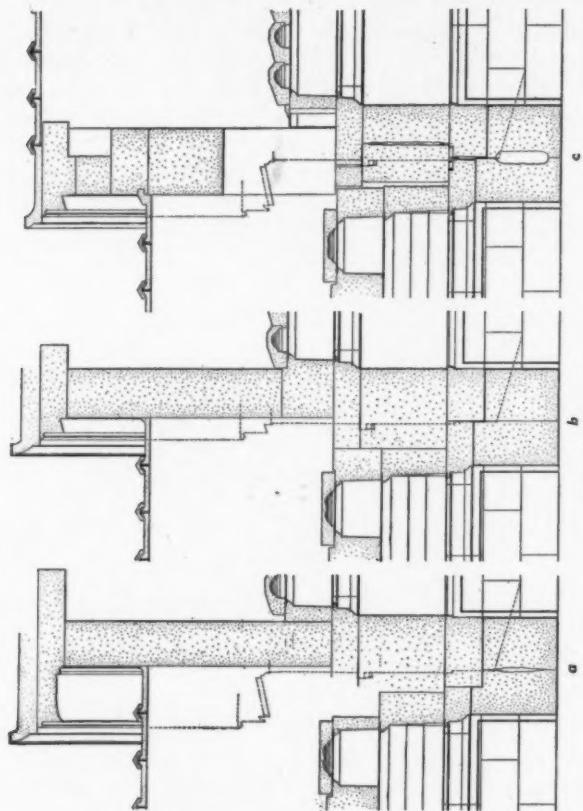


FIGURE 4.—SECTIONS OF THE GABLE ABOVE THE GATE WALL.

actually obtained in the tympanum wall is shown by the blocks later to be described (PLATE V, C-G, R-L), which formerly composed it.

¹ With the single exception of the gate wall itself, which is finished to 1.283 m. (originally 4 Attic feet, 1.30 m., with *werkzoll*).

A wall of this thickness, even if we placed it with its east face flush with that of the gate wall, must have projected on the west 0.156 m. beyond the plane of the angle triglyph. The fact that there was such a projecting tympanum wall is attested by the interior cornice of the east portico. The blocks of this cornice which formerly rested on the gate wall have a profile that is used throughout the main building; but they can be distinguished from the others by a process of elimination.¹ In this way we find for this cornice four blocks which have various lengths (1.940 m., 1.814 m., 1.195 m., and a broken piece at present 1.13 m. long), and various widths of bed (0.668 m., 0.735 m., 0.873 m., and 0.728 m., respectively); also they are treated at the back in different ways, two with anathyroses along the top, one finished smooth, and one finished with drafted edges. In spite of these differences, however, they possess common characteristics; they were secured to the stones below, not by single dowels but by pairs, unlike the two other cornice types 0.351 m. in height; each block has a T-clamp running back to some stone behind, so that the finish of the backs need not concern us (as it must have been concealed, though not perhaps in actual contact with other stones); and finally, each of the four blocks has a setting-line for a course above, with its face 0.305 m. back from the top of the course below the interior cornice. An examination of one of the blocks (Fig. 5) shows a bearing surface, "A," running back 0.375 m. for a ceiling beam of the east portico; beside this is another worked bed, "B," very narrow, for the slab filling the space between the ends of the beams; then comes the bed, "C,"

¹ Of the four types of Propylaea interior cornice with this profile:

- (1) Blocks 0.491 m. high (0.140 m. of which is wall surface), 1.176 m. long, and bed 0.880 m. wide, for side walls of west hall (PLATE V), where most are *in situ*, a few on the ground, and one in British Museum (*Brit. Mus. Cat. of Sculpture*, I, p. 280, No. 435).
- (2) Blocks 0.351 m. high, usually 1.200 m. long, bed 0.300 m. wide, to back the frieze of east and west porticoes.
- (3) Blocks 0.351 m. high, usually 1.300 m. long, bed 0.590 m. wide, for west side of gate wall. Of these I know no fragments, the dimensions being given by cuttings on the bed prepared for them.
- (4) Blocks 0.351 m. high, of unknown lengths and widths of bed, for east side of gate wall. To this series must be assigned all blocks not coming under the three other classes.

with its setting-line for the above-mentioned continuous course. Similar indications, though less well preserved, appear on the other blocks. We have, therefore, absolute proof that these came from the east face of the gate wall. The clamps which fasten them back-to-back to a course on the west side of the gate wall indicate that the tops of the two courses were on the same level, and therefore we may suppose bed "C" to have been continued on the stones to the west. One of the cornice

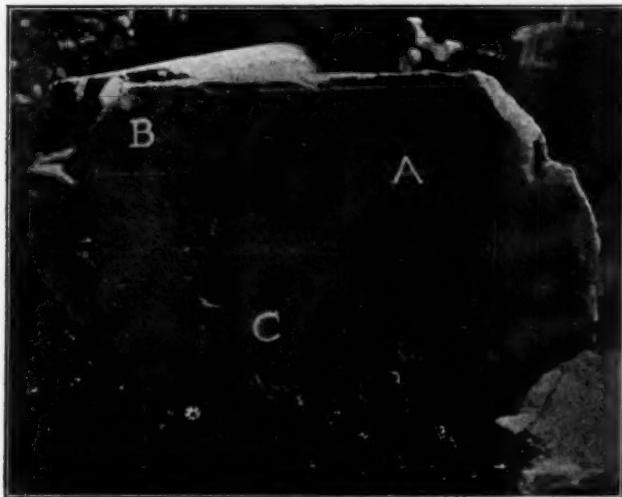


FIGURE 5.—TOP OF INTERIOR CORNICE BLOCK *P*.

blocks, *Q* (PLATE V), was cut in L-shape, and fitted in the angle at the south end of the gate wall; the short arm is now broken off, but a setting-line and a bed-cutting for its joint, on the *antithema* of the south epistyle, are 0.253 m. east of the gate wall. On the analogy of a completely preserved angle block which fitted in the southeast corner of the east portico, and was symmetrical with this, we must suppose that the short arm was about 0.246 m. long (measured on the actual bed). Therefore, the top of the course below the interior cornice (the high orthostates in alignment with the epistyle *antithemata*) was $0.253 - 0.246 =$ about 0.007 m. east of the gate wall, and the

setting-line on the top of the interior cornice was $0.305 - 0.007 = 0.298$ m. inside the east face of the gate wall. Since the angle triglyph is only 0.724 m. from the east face of the gate wall, our tympanum wall with a thickness of 0.880 m. must have projected 0.454 m.¹ west of the line of the bottom of the angle triglyph (Fig. 4 *c*), which had always been considered as determining the plane of the tympanum. It is to be noted that, as a practical advantage, this tympanum wall is very nearly centred on the thick gate wall below.

For a moment, for confirmation, we turn to the cornice of this backing gable. This was at first supposed, naturally enough, to have been exactly like that of the façades; thus we find it given by Stuart and Revett² in 1753, by Penrose³ in 1846, and by Ulmann⁴ in 1875. Their great cornice with an overhang of 1.025 m., balanced on a thin wall of only 0.587 m., is very distressing (Fig. 4 *a*). But Revett had found another geison with a very slight overhang; probably he noted merely its profile, for it was published as horizontal, "a piece of external cornice which was perhaps on the south side."⁵ This block still exists, lying in the Brauronian precinct south of the main building; it is, however, not a horizontal cornice, but fitted next to the angle of a gable. It was so drawn, with great inaccuracy, by Hoffer,⁶ who first assigned it to the backing gable. It was unknown to Penrose and Ulmann, and Bohn searched for it without success, though he accepted Hoffer's identification⁷ and so preserved the equilibrium of his thin tympanum wall, though the unsymmetrical overhangs of the cornice as seen on the north and south sides are very unfortunate. Hoffer's identification of this geison (PLATE V, A) is correct: the total height, 0.340 m., and the height of the separate members are the same as in the raking cornice of the main pediment, but the overhang beyond the tympanum is only

¹ $0.724 - 0.298 = 0.426$ m., part of wall east of triglyph.

$0.880 - 0.426 = 0.454$ m., part of wall west of triglyph.

² *Antiquities of Athens*, II, ch. V, pl. 4.

³ *Principles*, 1st ed., pl. 30.

⁴ D'Espouy, *Fragments d'Architecture antique*, I, pl. 2.

⁵ *Antiquities of Athens*, II, ch. V, p. 41, pl. VII, 4.

⁶ *Wiener Allgemeine Bauzeitung*, VI, 1841, pl. 391, Figs. 36, 37; pl. 392, p. 123.

⁷ *Die Propyläen*, p. 20, pls. VI, VII.

0.292 m., instead of the 0.815 m. of the main pediment.¹ That this sole remaining block should have come from a position next the angle is fortunate for us, since it has cut on the same stone, in accordance with the custom observed in the main pediments, the angle of the tympanum. Placing this in the plane of the tympanum wall (the various blocks of the thickness 0.880 m. will show that the entire wall up to the apex of the tympanum lies in one plane, cf. Fig. 4 c), we have the crowning moulding of the geison $0.292 + 0.454 = 0.746$ m. in advance of the bottom of the angle triglyphs, or, allowing for the 6 mm. inclination of the triglyphs, 0.752 m. from the top, and 0.752 m. is

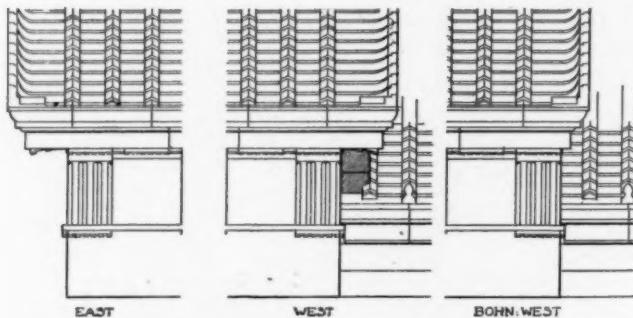


FIGURE 6.—ENDS OF NORTH ENTABLATURE OF EAST PORTICO.

exactly the overhang of the ordinary mutular geison. This coincidence lends sufficient support to the restoration of a projecting tympanum wall, and also enables us to revise Bohn's elevations of the north and south sides;² for, although in reality the geison of the backing gable had an overhang not much more than a third of that of the east pediment, the two were so arranged that when seen at one time, from the side, they appeared to be the same (Fig. 6). The details of this scheme must be considered later.

The sima of this gable has always been restored with a profile like that of the main pediments, though this seems too heavy for the abbreviated geison. Around the Propylaea are

¹ The tympanum of the main pediment is recessed slightly; the overhang of the geison beyond the triglyphs is 0.752 m.

² *Die Propyläen*, pl. VI.

six pieces of a sima which belonged to a pediment, some to the left slope, others to the right, as shown by their system of overlaps and rebates; one block has the complete length 0.700 m., and two fragments fit together and give the length 0.702 m., as in the main pediments; and the fascia below is of the typical height, 0.090 m. But the ovolo is abruptly cut off, without a moulded finish, at a height of 0.212 m. above the bed (PLATE V, S), whereas the typical pediment sima was 0.357 m. high. Penrose once used it to crown the walls against which the west wings lean,¹ in spite of the fact that these walls were never higher than they now appear; later he proposed that it should crown the side walls of the west hall,² a manifest impossibility, because we have the eaves tiles from these walls. The only possible place in the Propylaea for this sima is the cornice of the backing gable; the way in which it suits its geison may be seen in Figure 3 c.

With this low pediment sima meeting a higher one on the flanks of the portico, a peculiar disposition of the angle block became necessary. The top line of the flank sima must have been returned horizontally on the gable front until it intersected the sloping top of the low raking sima, as shown in PLATE V.³ While not ideal in appearance, it is not out of character with the other makeshift schemes in this part of the building; and we have proof that this was actually done in early Doric temples, as the hexastyles at Paestum and Temple C at Selinus.⁴

We turn now to the discussion of the blocks composing the tympanum itself. Ten present peculiarities which lead us to assign them to this gable; three have sloping tops which formed the bed of the raking geisa, and four have cuttings for roof tiles; eight have, or had, the regular wall thickness, 0.880 m., and two are of a special width, as we shall see. Again, leaving out of the question the blocks with sloping top, they seem to have the uniform height of $1\frac{1}{2}$ Attic foot used throughout the Propylaea (two are 0.492 m., one, 0.493 m., two, 0.494 m., and two, 0.501 m. high, the variations being no

¹ *Principles*, 1st ed., p. 62, pls. 28, 34.

² *Principles*, 2d ed., pp. 68, 69, pls. 29, 34.

³ Compare Figure 7.

⁴ Koldewey-Puchstein, *Die griechischen Tempel*, pp. 20, 21-22, 23, 104-105.

greater than occur elsewhere in the building); and even one of the higher blocks with a sloping top has an anathyrosis for the top of a horizontal course abutting on it $1\frac{1}{2}$ foot above its bed (PLATE V, E). In our consideration of the east pediment we found that the apex of the tympanum was 4.990 m. above the epistyle soffit over the central intercolumniation; subtracting the interior cornice and the epistyle *antithema* (0.351 + 1.138 m.), we have the height of the tympanum wall as 3.501 m. From this we must subtract the distance from the tympanum apex to the bed of the existing apex stone (see PLATE V, C), 0.548 m., leaving 2.953 m., which should be divided into regular courses;¹ and we find that it gives exactly six courses of an average height of 0.492 m. It remains now to decide whether the block had the regular length too, the 1.176 m. used elsewhere in the Propylaea.² I think it can safely be said that this was the case. Of our ten blocks, three (H, J, and K) are cut in half lengths (0.585 m., 0.631 m.,³ and 0.600 m. long); another is of complete length (1.193 m.); with the course above breaking joint at its centre, while a fifth (N), now broken in halves, also had the course above jointed a half block length from its preserved end. The outer ends⁴ of blocks D and E, and of F and G, as placed by other considerations, are separated by intervals exactly divisible by 1.176 m.; and the interior cornice blocks O and P, which fit together, have on their top scratch lines for a stone 1.184 m. long. So we must restore a tympanum wall built of ordinary blocks $0.492 \times 1.176 \times 0.880$ m. It may be noted here that the workmanship was comparatively poor; blocks of defective marble, perhaps rejected from other parts of the building, are here used (one, F on PLATE V, was cut down from an original

¹ That the apex stone rested on the top of a regular course, and not in a pocket, as, for instance, in the Temple of Hera at Selinus (Hittorff et Zanth, *Architecture antique de la Sicile*, pls. 37, 46), is shown by the fact that it is dowelled at the bottom.

² Except in the west and north walls of the Pinakotheké, where the blocks were increased to the length 1.250 m. on account of the triglyph spacing.

³ This is exceptionally long because it was at the south end of the wall and made up the difference caused by an off-centring of the joints, which appears plainly in the apex block C (PLATE V).

⁴ These blocks are in themselves of special lengths, so that the ends toward the axis of the gable will not agree with the joint spacing.

length of 1.176 m., as shown by the position of the boss; another had an anathyrosis for a block to abut at right angles, but was here used as an ordinary wall block).

The apex block *C*, with the ridge beam socket, falls immediately into its place; its centre is 0.031 m. north of the axis of the gable, and here we meet a secondary axis, used throughout for the joint spacing.

Two blocks (*D* and *E*) with sloping tops and sockets for purlin beams of the east portico require more consideration. They were symmetrical with respect to each other. For their positions our evidence is that their lower beds must agree with the regular course joints, and that dowel holes on their tops must agree with joints of the raking geisa. The preserved dowel holes on block *D* indicate joints about 0.88 m. apart. Now the entire length of the raking geison on top may be obtained from the east pediment as 11.428 m. Of this the apex geison, as determined by its truncated base, occupied 0.462 m., and from the east pediment we obtain the length on the slope of the lower angle geison as 1.403 m. Against the latter fitted the preserved geison *A* at the south end, with the length of 0.815 m.; this was not the regular length of the geison blocks, but was a special length determined by the fact that cut on the same stone is a vertical tympanum wall joint which was made to agree with the other tympanum joints.¹ Subtracting from 11.428 m. our three main blocks, the remainder is 8.748 m., which will give ten average geisa of 0.875 m. Remembering that geisa were dowelled at their lower ends so that the dowel holes must be *above* the geison joints, we find that blocks *D* and *E* agree with the horizontal course lines only when placed as on PLATE V. Their outer ends fall eight regular block lengths apart; but *D* and *E* are, in themselves, shorter than usual, so that between them we have more than six block lengths.

Four preserved blocks show cuttings for the reception of roof tiles (PLATE V, *F*, *G*, *H*, *J*). Such cuttings exist also for the

¹ This is seen in a restored symmetrical geison, *B*, PLATE V, whose vertical joint is $7\frac{1}{2}$ block lengths north of the centre of *C*; because of the off-centring of the joints, geison *A* is a little farther away, but for ease of workmanship the geison lengths were made uniform on both slopes and the difference taken up in block *G*.

roofs of the west wings, about 0.140 m. wide, with jagged additions for the *ipavres* or roof boarding at the bottom and for the tiles at the top, bringing the total width in places up to about 0.220 m.; the workmanship is very careless. Our four blocks, on the contrary, have cuttings 0.075 m. wide, very carefully finished, and following the outline of each individual tile. They cannot belong to the Pinakothek,¹ and we must assign them to the gate wall. It is important that we should know exactly what part of the tile was inserted in the cutting. In the west wings the top of the cutting with the tile outline was exactly level with the tops of the cover tiles; but the vertical risers which appear in the cuttings, instead of projecting like the cover tiles, 0.065 m. beyond the risers of the flat tiles, were exactly above the latter. Therefore, the cover tile against the wall was cut on the same stone with the flat tile. This same relation of cutting to tile we must assume in the gable above the gate wall; in fact, in no other way can blocks *H* and *J* be made to fit both the tile cuttings and the wall course levels. The section through the tiling of the west hall, PLATE V, is drawn like that of the east portico (as determined by the joints of the east pediment sima, allowing for the overlap), but 4½ Attic feet lower; so drawn, it exactly fits the eaves tiles which rested on the geisa of the side walls.² A similar outline 0.105 m. above the flat tiles (the height of the cover tiles) should be the upper line of the tile cutting in the tympanum wall.

If we take first the pair of short blocks *H* and *J*, and make them fit at the same time both the course lines and the assumed tile cutting, it appears that they will do this at only one place, namely, on the lowest course with their outer ends on a line with the inner side of the angle triglyphs. They are so drawn in elevation on PLATE V, and again in plan, where the lowest course of the tympanum wall is represented in broken outline. It will be seen on the plan that *H* and *J* thus lie above the easternmost blocks of the side wall geisa of the west hall. But the top surface of these geisa is 0.094 m. below the bed of blocks *H* and *J*. This difficulty was met in the way shown in

¹ Which they could not fit in any case.

² One of them drawn by Penrose, pl. 34, and Bohn, pl. XII, 7.

the detail of the interior cornice angle block *Q*, PLATE V; when this is set in place, a rectangular cutting at its southwest corner falls exactly in line with the metope backer of the angle triglyph, and also in line with the back of the south wall geison, which here is finished with an anathyrosis joint.¹ On this south geison, and likewise on that at the north (see Fig. 3), a bed, raised 0.011 m., extends from the back of the stone to the edge of the angle triglyph, with a dowel hole at its outer end; the cutting in the interior cornice is 0.083 m. deep, so that bottom of cutting and top of raised bed are exactly on the same level. The exterior geison and interior cornice were then connected by a slab 0.083 m. thick, making a level and continuous bed for the tympanum wall. It appears then that Bohn was correct in refusing to recognize the metope slot on the triglyph; it is merely an ordinary angle triglyph, and its metope backer was rudely hacked off to give room at the point where the tympanum wall assumed its full thickness, and still more undercut below to allow the passing of the interior cornice.

At the outer ends of these short blocks *H* and *J* we have the returns of the projecting tympanum wall to the plane of the angle triglyph. And, in fact, these ends of the stones present finished surfaces; the tile cutting is not carried around, but for this slight distance the tile merely abutted on the stone, just as it did on the adjacent angle triglyph.² A restoration of this portion appears in Figure 7.³ The arrangement of the geison at this point is worthy of notice; as it turns the corner, with the full overhang of 0.752 m., we find the usual mutule over the triglyph, and then the wall breaks forward. The geison, however, did not break out around the wall, but was carried directly along with all simplicity; the overhang as a result was reduced to 0.292 m., as we know from the raking geison.

Blocks *H* and *J* fix the ends of the tympanum wall as 19.316 m. apart, or 0.500 m. more than sixteen wall block

¹ The last block of the north wall geison is hewn off shorter and so gives no evidence.

² A weather line on the return of stone *J*, 0.335 m. below the top, exactly fits the eaves tile which was set against the block.

³ This is shown from a similar viewpoint, but in its present state, by Bohn, pl. XV, 5.

lengths. On account of this extra quantity, 0.500 m., the joints in the lowest course at least could not have coincided with those of the upper joint system, which were spaced on either side of the centre of block *C*; the lower joint system was spaced from the ends of the tympanum wall. The two systems were separated, for a certain distance, by the horizontal geison. We now place the two blocks *F* and *G*, with the cuttings. They will coincide with the tile outline and with the

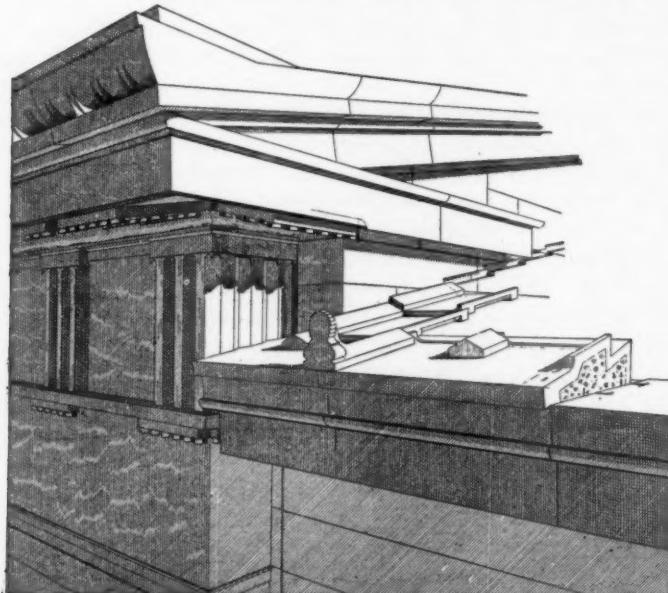


FIGURE 7.—NORTH END OF TYMPANUM WALL.

course lines at the same time only if we place them in the third course of the tympanum wall; here they occupy part of the height of the horizontal geison, which therefore probably stopped on the blocks next outside them. Like *D* and *E*, these blocks are of special length, about one metre; and when in position, their outer ends are found to fall into the upper joint system, and their inner ends into the lower joint system. Here then occurred the necessary attempt to reconcile two

systems which had nothing in common. Figure 8 shows the blocks already placed and their relations to the two joint systems; to avoid confusion the off-centring of all the joints, though drawn on PLATE V, is here omitted.

In view of the elaborate precautions for relieving the epistyle in the centre of the façade, it may well be inquired whether something to the same effect may not have been carried out

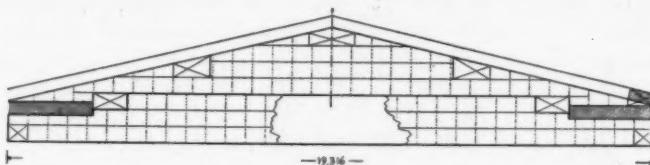


FIGURE 8.—THE TWO JOINTING SYSTEMS OF THE TYMPANUM WALL.

over the lintel of the great central gate, which is composed of a pair of beams each 6.697 m. long. The evidence from the tympanum wall is fourfold.

First, a glance at Figure 8 is sufficient to show that the lower jointing system could not have been carried through, with equal spacing, from end to end of the wall; there must have been an interruption somewhere in the middle. Blocks *F* and *G* tell us that between them the lower joint system was carried up to a height of three courses. Therefore the interruption, whatever it was, must have been of the height of three courses.

Second, there are some ordinary wall blocks, 0.493 m. to 0.494 m. high and 0.880 m. wide, which must be assigned to this wall for the simple reason that those extant are more than enough to make up for the deficiency elsewhere in the Propylaea. I shall here speak only of two which present marked peculiarities. On the bottom of one (PLATE V, *M*) appear stains taking the exact form of the lead around the clamps in the stones below it; one such trace, 0.255 m. inside the east face of the wall, exactly fits the western of the two series of clamps on the top of the interior cornice; the other is at right angles to the direction of the wall, and can only be the trace of a clamp which bound this interior cornice to the course behind it. In short, it is exactly the imprint that was given by the

clamps on the existing interior cornice block *O*. We must then place *M* in the lowest course, in the middle of the south half of the tympanum wall. It has another important characteristic, a weather line along the bottom about 11 cm. from the west face; it is due to the fact that the narrow course behind the interior cornice stopped 0.103 m. inside the west face of the tympanum wall (Fig. 4*c*), as we know from the anathyrosis on the back of the side wall geison and the raised bed under stones *H* and *J* (PLATE V, detail *Q*). This same weather line appears on another stone, *K*, which is thus identified as belonging to the lowest course, even though it is so short that it lacks the trace of the clamp at right angles. It shows, however, the stain of a clamp connecting two interior cornice blocks. Its importance is that it is a half block, the north end with an anathyrosis joint and a clamp to the adjoining block, the south end rough, with drafted edges, and without a clamp. It is dowelled below at this drafted end, and at this same end has dowels above, so that two courses at least ended one above the other. This, therefore, forms an end of the tympanum wall toward the south, and in a very unfinished manner; but in stone *J* we already have the real south end of the tympanum wall. There must have been an opening allowing ends somewhere in the centre.

Third, block *N* of the interior cornice (Fig. 9) shows on its top two great holes; these certainly contained dowels, for they are now partly gouged out, the infallible sign of the mediæval seeker for lead, and they show traces of having first been cut to the ordinary dowel width, and then enlarged. Instead of the usual holes 0.06 m. deep, 0.015 m. wide, and 0.08 m. to 0.09 m. long, these are 0.09 m. deep, 0.03 m. wide, and 0.13 m. and 0.16 m. long. Just south of these came the end of a wall block, as is shown by a dowel and a pry-hole; just north of them is another small dowel; in front of them was the end of a ceiling beam. Placing this cornice block in position by making its ceiling beam bed and tympanum wall joint fit the parts for which they were destined, we find that it is limited to one spot, and this is such that the great dowel holes come exactly above the south jamb of the central gate. The explanation of these dowels may be looked for in the contemporary jambs of

the north door of the Erechtheum; here the bottoms were secured by great dowels of very similar appearance, with cuttings 0.12 m. deep, 0.03 m. wide, but in a T-form 0.17 m. \times 0.16 m., the base of the T reaching to the back of the jamb, so that the lead could be poured in. In our case, where the dowels were set 0.02 m. to 0.05 m. inside the line of the tympanum wall, and parallel to it, sinkages 0.008 m. deep, the full length of the dowel, led out into free space 0.025 m. beyond the tympanum wall, and conducted the molten lead evenly to all corners.¹

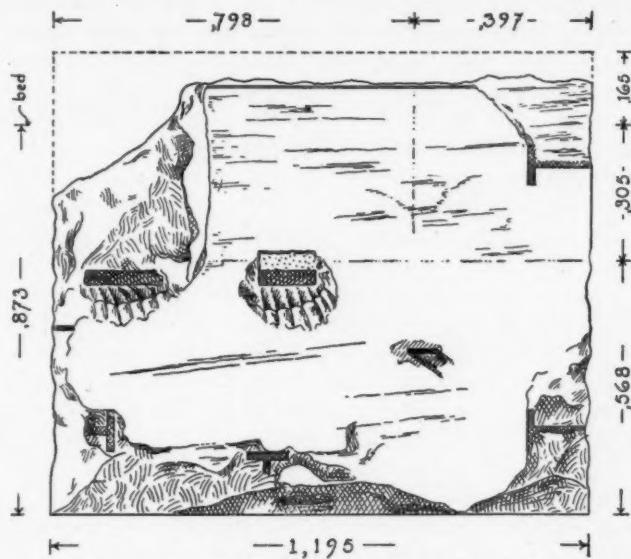


FIGURE 9.—TOP OF INTERIOR CORNICE BLOCK N.

It was the prototype of the Roman method, in which a narrow channel ran to one corner of the dowel. On these dowels, then, we restore piers exactly above the gate jambs; their dimensions must have been, from front to back the 0.880 m. of the wall, the width about 0.80 m., as fixed by the two small dowels (one

¹ In the Propylaea these dowels themselves were, as usual, about 0.008 m. thick, but since they had to be fixed in the bottoms of the stones above before the latter were lowered into place, inaccuracies of measurement were allowed for by making the cuttings in the lower stones 0.030 m. wide.

in the last wall block and one in the side of the pier itself), and the height, as determined by the lower jointing system on Figure 8, three courses. The distance from the interior cornice joint at the south end of this block, *N*, to the end of the tympanum wall stone, as marked by the dowel, is 0.395 m.; on the bottom of stone *K*, the distance from the interior cornice joint, as indicated by half the length of the double-T clamp stain, to the drafted end of the stone is 0.395 m. Stone *K*, then, rested on a symmetrically placed replica of cornice *N* above the north jamb of the central gate. Stone *K* and the two courses above it ended without quite coming into actual contact with the piers, and the reason is evident. That the weight of the mass above might not merely be thrown sidewise and transmitted course by course to the lintels of the lower doors, the tympanum wall was not bonded at all with the piers, which, standing above the jambs of the central gate, alone carried what we must now restore, a great lintel.

Fourth, the fact that blocks *D* and *E* are of special lengths, so that their inner ends fall short of what should be the joints by 6 cm. in each case, is still unexplained. Whatever abutted on them must have been prolonged beyond the usual joint lines, and now that we have erected the two piers in PLATE V, it appears that these unusual features were the ends of the great lintel which rested on those piers. Such a lintel must have been two courses high, and would fall into the fourth and fifth courses of the tympanum wall. In this connection comes the extra anathyrosis at the inner end of stone *E*, even with the top of the fifth course; in other words, adjoining the anathyrosis at the top of the lintel.

I think that the facts adduced above prove that there was something unusual in the middle of the tympanum wall, that here was an opening lined by heavy jambs which supported a great lintel, forming a relieving space 1.476 m. high and about 4.62 m. wide (a little greater than the opening below) above the lintel of the central gate.¹ It was entirely below the roof

¹ We may suppose that this same principle of a relieving superposed lintel was carried into execution above the longer lintels of the Parthenon doorways, although for them data have never been gathered. The method was not unique; a similar device at Magnesia has already been noted. And in the "Temple of

of the west hall, and at the same time behind and above the ceiling beams of the east portico, so that it did not need to be closed. The ridge beam of the west hall, which abutted on the relieving lintel, would not have needed a socket; as above each of the three pairs of Ionic columns, it was probably here supported by a cross-beam (*μεσόμυνη*) with struts (*ὑποθήματα*). That no fragments of posts or lintel have yet been identified is not surprising when we consider the scarcity of remains of those portions of the building which fell in 1687.

The west hexastyle had a suggestion of a backing gable analogous to that of the east portico; but since here the roofs

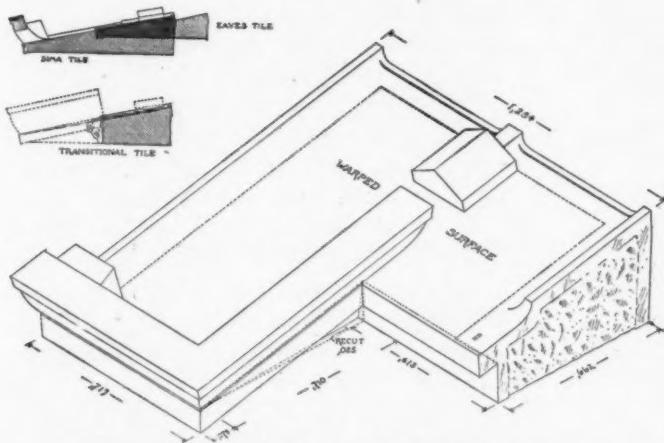


FIGURE 10.—GABLE ANGLE BACKING THE WEST HEXASTYLE.

were on the same level, the gable was extremely rudimentary. The roofs of the two proposed halls facing east were to abut on the side walls of the main building at such a high point that, although the main cornice could have been uninterrupted, the epistyle and frieze had to be omitted. Therefore the mutules disappeared from the geison, which was correspondingly reduced

Concordia" at Acratas, where a doorway is pierced in each of the four triangular walls which subdivide the roof space, that above the naos door is made wider than usual to relieve the lintel. (Koldewey-Puchstein, Fig. 156, and Durm, *Baukunst*, Fig. 141, show the similar but narrower opening over the epinaos columns.)

in overhang (from 0.752 m. to 0.584 m.);¹ and this, together with the fact that the side walls of the west hall are set 0.513 m. behind the top of the triglyph, necessitated breaking back the geison for 0.681 m. The slope of the roof therefore stopped with the eaves tiles above the reduced cornice at a higher point than with the sima tiles above the cornice of the order (Fig. 10 *a*). All the adjustments necessary here were carried out on a single stone for each side of the building; that from the south side still exists, cut as a double tile (Fig. 10 *b*). Its west joint coincides exactly with the sima tiles of the west portico, which it adjoined. The entire east half of the block, finished as an eaves tile without a sima, was set so far behind the west half as to align with the tiles above the reduced cornice.² To make the transition between the two, the sima returned in the form of a gable angle, but died away when it met the tile above the reduced cornice. The amount of the slope of this sima is taken up by a fascia 0.161 m. high, inserted between the hawk's beak of the geison and the overhanging nosing of the eaves tile.³ This fascia is elsewhere cut on the geison blocks, but in our transition block it was cut with the tile so that the bed joint might correspond to that of the sima tiles.

I have here confined myself to the study of the four gables of the main building: a fifth, that of the southwest wing, has now received additional details which must be treated later. Of the two main pediments, that of the east façade has of necessity served as the type, but the same principles held true for both. It has shown us a systematic attempt to lighten the superstructure, for the width of the central intercolumniation, from soffit of epistyle to apex of pediment; using thicker epistylia⁴ with an exaggerated hollowing-out of material,⁵ form-

¹ For this reason also the height was reduced by omitting the sima and using a simple eaves tile.

² Since the eaves tile has the usual roof-tile slope, while the sima tile, about twice as long but omitting an additional tile riser, has a steeper slope, the cutting of the two on the same stone necessitated some slight warping of the surface.

³ The acroterion base, shown by Penrose (2d ed., p. 68), was here omitted.

⁴ Bohn, *i.c.*, p. 19, loses the point in supposing that the two-beam type of epistyle was continued all along the façade.

⁵ Remarked by Penrose, *i.c.*, p. 71.

ing the frieze in great cantilevers,¹ and making the central orthostate of the tympanum exceptionally long, to act as a beam, lightened by hollowing behind, and with the tympanum backing omitted, until all parts above the frieze exactly balanced on the cantilevers. Another system, that of the superposed lintel, was employed in the backing gable of the east portico in the attempt to relieve the lintel of the central gate. That of the eastern façade we shall soon see reconstructed with the original stones; but the gable above the gate wall, represented by twenty-two fragments scattered about the Acropolis and by a fragmentary angle triglyph *in situ*, will probably be known only from architectural drawings.

II. THE SIMA OF THE SOUTHWEST WING

The unexpected abbreviation² of the southwest wing of the Propylaea necessitated a wall which, in order to close the incomplete hip roof on the south, was carried up in the form of a half gable, forming the fifth gable in the building. The horizontal entablature was returned on this south wall for only the width of the anta; the geison was stopped by a plain projecting block against which the mouldings abutted (Fig. 15); and beyond this rose the coursed masonry wall, which finished at the top in a ramping outline which was first noticed by Professor Dörpfeld. He proved that on this ramp wall fitted a series of geisa which had been built into the Florentine tower, and which Bohn had used, in spite of their exceptional forms, to show that a gable had existed above the north front of the southwest wing; Dörpfeld found that there had been eleven geisa, of which he had nine; one ordinary block was missing, and likewise the angle block which had evidently been broken up on account of its awkward shape, useless for building into a wall. I shall, therefore, merely add some details to what has already been published by Dörpfeld.³

In the first place, however, a slight change must be made in Dörpfeld's arrangement of the raking geisa. On their tops are pry-holes; when two happen to appear on the same stone, they

¹ This was first noticed by Hoffer, *l.c.*, p. 121; see also Bohn, *l.c.*, p. 20.

² W. Dörpfeld, *Ath. Mitt.* X, 1885, pp. 41–47, pl. II.

³ *Ath. Mitt.* X, 1885, pp. 131–144, pl. V.

are about 0.635 m. apart, and so are clearly intended for the type of roof tile used in the west wings of the Propylaea, with an exposed length (on the slope) of 0.637 m. The geisa must, therefore, be arranged so that all the pry-holes will be uniformly spaced, and this causes the missing regular block (which Dörpfeld names *E*) to fit the fourth place, counting from the lower angle, instead of the third.

What rested on these geisa has remained in great uncertainty. Bohn, placing them in pediments facing toward the central building, admitted that their sima could not be identified, and restored one with an ovolو profile reduced from the main cornice.¹ Penrose, who placed the geisa on the wall to which they actually belonged, also restored an ovolо sima without evidence.² Dörpfeld, and, more recently, Wood, found no evidence which could be brought to bear upon this point. Whether these roof tiles were faced by some sort of sima, or by a high rim, as were the great tiles over the niches connecting the west wings with the central building, or merely by an overhanging nosing, as elsewhere on the west wings, remained unknown.

An important fact may be deduced from the geisa themselves. We have the stone (following Dörpfeld, it may be called *F*) which fitted next to the missing angle block (called *G*); it is noticeable that the lower joint of *F* coincides with a roof tile joint indicated by the pry-holes; both series of dimensions were, therefore, spaced from this point of coincidence. It is the same as what we found in the main pediments of the Propylaea; it can only be the result of the same gable angle construction, cutting the angle geison on the same block with the angle sima above. So the missing angle geison *G*, if found, should give us also the finish of these roof tiles.

In the centre of Figure 11 appears a small fragment found on the Acropolis, just northeast of the Propylaea. Below, it has a hawk's-beak moulding of exactly the same profile as that crowning the geisa of the west wings; above, we find part of a sima with a fascia of exactly the same height, forward inclination, and projection beyond the hawk's beak that we find in the nosing of the eaves tiles of the west wings — just as the

¹ Bohn, *Die Propyläen*, p. 23, pls. VII, X.

² Penrose, *Principles*, 2d ed., p. 68.

nosing of the eaves tiles of the side walls of the main building is repeated in the fascia of the sima of the main order. It was part of a gable, since its joint has the typical rebate for the overlap of the next sima and tile above; therefore, it belongs to the only gable connected with the west wings; and the rebate is at the right joint of the block, so that it came from the left slope of a gable, the only slope that appeared in the hall gable of the southwest wing. But unlike the other blocks of this gable,



FIGURE 11.—THREE SIMA FRAGMENTS ON THE ACROPOLIS.

geison and sima are here cut on the same stone, and, therefore, it can belong only to the missing angle stone *G*.

Though only a fragment, this shows that the sima had a reverse curve as if it were a *cyma recta*, unlike anything else in the Propylaea. By the aid of this fragmentary profile I was able to identify two other fragments (shown at left and right of Figure 11), and these give the complete profile of a so-called "Ionic sima," which in the Propylaea must have occurred in a startling combination with the Doric hawk's beak (Figs. 12 and 13). Besides the evidence of the identity of profiles, the two sima fragments themselves present fractures which exactly fit each other and give a complete length of 0.6355 m., which suits the regular tile length of 0.637 m. in the west wings, but totally disagrees with that of the tiles of any other building on the Acropolis.

We are now for the first time able to associate with the Propylaea a *cyma recta*, and this becomes of importance when

we notice that this profile, the "Ionic sima," is not in regular use until well after the fifth century. A review of its development, however, will show that there is nothing inconsistent in this seeming mixture of Doric and Ionic elements, and that we

have here one of the steps in the history of architectural form.¹ The earliest suggestion of the *cyma recta* is seen in the Doric hawk's-beak moulding, especially after it was refined and undercut as a reverse curve.² Of the positions in which the hawk's beak was used, that which most concerns us is its frequent occurrence as the topmost moulding of a complicated series decorating the terra-cotta facing of poros geisa, as in temple C at Selinus;³

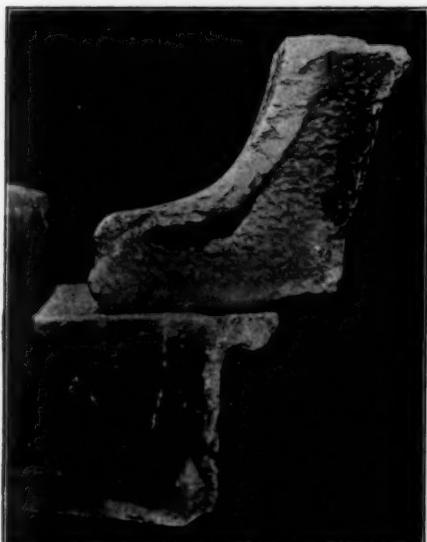
FIGURE 12.—THE RAKING CORNICE OF THE SOUTHWEST WING.

above this was some sort of sima. This use of the hawk's beak crowning the geison later became characteristic and was perpetuated in poros and marble throughout Greek

¹ I treat this question the more fully because the latest authority on the subject, M. Schede, in his *Antikes Traufleisten-Ornament* (Strassburg, 1909, p. 14), merely says of the "Ionic sima" that it is related to the Doric hawk's beak, that it appeared in the provincial temples of Bassae and Messa, and finally became standard in Ionia in the fourth century.

² In an unusual local development in the "Poseidon" temple at Paestum, an almost perfect *cyma recta* is used instead of the hawk's beak on the frieze *antithemata* and the anta capitals; but this is without further significance, having had no influence elsewhere.

³ Dörpfeld, Gräber, Borrmann, Siebold, *Über die Verwendung von Terrakotten am Geison und Dache griechischer Bauwerke. 41st Winckelmannsprogramm*, Berlin, 1881, pls. II, I, III, IV, 1.



Doric architecture. But in the archaic period it sometimes happened that this entire series of mouldings was raised *above* the geison and in itself formed the sima, with the hawk's beak as the topmost member; this is illustrated by examples from temples *C* (gables only)¹ and *F*² at Selinus, the temple of Heracles at Acragas,³ a fragment from Olympia,⁴ and later in a limestone sima of the early part of the fifth century from the temple at Himera.⁵ This is but a step from the sima in the form of a *cyma recta*, and once, in a building at Olympia

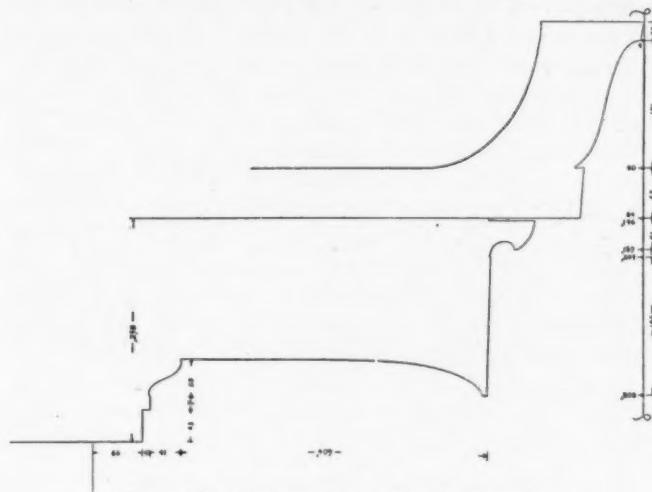


FIGURE 13.—PROFILE OF THE RAKING CORNICE.

(perhaps one of the earlier treasuries), this step was taken, and we find a terra-cotta sima with the true *cyma recta* profile — and yet, in recognition of its hawk's-beak origin, it is painted with the vertical leaf ornament characteristic of the hawk's

¹ Dörpfeld, Borrmann, et al., *Terrakotten*, pl. II, 2, 3.

² Hittorff, Zanth, *Monuments antiques de la Sicile*, pl. LVI, 1, 2; Koldewey-Puchstein, *Die Griechischen Tempel*, p. 119; Durm, *Baukunst der Griechen* (2), pp. 135, 137.

³ Hittorff, *Temple d'Empédocle*, pl. X, 2; Koldewey-Puchstein, *l.c.*, p. 149; Durm, *l.c.*, p. 135.

⁴ Olympia: *Ergebnisse*, Text II, p. 202, Fig. 26.

⁵ Koldewey-Puchstein, *l.c.*, p. 51; Durm, *l.c.*, p. 138.

beak alone.¹ But this instance was almost an accident,² and was unique among simas until we come down to the date of the Propylaea. It seems, therefore, that to the same spirit which led Mnesicles to find an unprecedented decoration, the egg-and-dart, for the sima of his main order, we owe the employment of a new profile for the sima of his secondary order.

One can hardly overestimate the importance of this invention of the *cyma recta*, the most familiar of all mouldings; it was an invention, the beginning of a continuous development. Soon after the cessation of work on the Propylaea, Ictinus borrowed this form for the pediments of the temple of Apollo near Phigalia, with some enrichment of the upper and lower mouldings.³ Then, toward the end of the century, it appeared in the second temple of Apollo at Delos,⁴ erected by the Athenians.⁵ These three, the Propylaea, and the temples at Bassae and Delos, all designed by Athenian artists, give the earliest examples of the developed *cyma recta* in Greek architecture. Its use in them, and its entire preliminary development, show that it was so far essentially a Doric moulding.

Previously in Ionic architecture the prevailing type was the vertical parapet with reliefs, appearing in terra-cotta in the temple at Neandria⁶ and in that of the Dictaean Zeus in Crete,⁷ and in marble in the sixth-century temple at Ephesus,⁸ the Ionic temple at Locris Epizephyrii,⁹ and the three Ionian treasuries at

¹ Olympia: *Ergebnisse*, Text II, p. 104; Atlas II, pl. 118, 2 a.

² One or two other sporadic cases occur (but not on simas), as the cap of the pedestal of Antenor at Athens (*Ant. Denk.* I, p. 43, Fig. 5), likewise decorated with the broad Doric leaves and merely an outgrowth of such hawk's-beak forms as on the pedestal of Aeschines (*Ant. Denk.* I, pl. 29, 1) with the upper portion omitted.

³ Stackelberg, *Apollotempel von Bassä*, p. 45; Blouet, *Expédition de Morée*, II, pl. 19; Cockerell, *Temple at Bassae*, pls. 3, 6, 8.

⁴ Blouet, *Expédition de Morée*, III, pl. 7; photographs of German Institute at Athens, *Mykonos*, 16, 17 a, 17 b; Schede, *l.c.*, pl. IV, 26.

⁵ Karo, *Arch. Anz.* 1908, pp. 143-144.

⁶ Koldewey, *Neandria: 51^{ter} Winckelmannsprogramm*, Berlin, 1891, p. 48.

⁷ Bosanquet, *B.S.A.* XI, 1904-05, pp. 300-303, pl. XV; Savignoni, *Röm. Mitt.* XXI, 1906, pp. 64-82, pl. II.

⁸ Hogarth, *British Museum Excavations at Ephesus*, London, 1908, pp. 300-301.

⁹ Koldewey-Puchstein, *Die Griechischen Tempel*, p. 7.

Delphi.¹ It is near the end of the fifth century before we first find the *cyma recta* in an Ionic building,² the Erechtheum.³ From the Erechtheum this type seems to have crossed into Ionia through two channels early in the fourth century, first, when parts of the Erechtheum order were copied in the "Nereid Monument" at Xanthus, and again, when in the temple at Messa in Lesbos,⁴ the traditional Ionic vertical parapet was retained on the eaves, while the pediments had the new *cyma recta*.⁵ Thence, adopted to the exclusion of all other forms by the Ionian schools of the second half of the fourth century,⁶ it spread throughout Hellenistic Greece and the Roman world, and has since been more frequently employed than any other form of moulding.

Of the ornament of the sima of the southwest wing I could detect no trace; yet, coming just above a hawk's beak on which

¹ Published with doubtful identifications as: (1) "Cnidian," *Fouilles de Delphes*, IV, pls. 16-17; (2) "Siphnian," *B.C.H.* XXIV, 1900, p. 603, Fig. 5; (3) "Phocaean," Perrot and Chipiez, *Histoire de l'Art*, VIII, p. 301, Fig. 182.

² Its use in the temple of Athena Nike, as restored by Ross, Schaubert, and Hansen, has long been known to be false (see Le Bas, *Voyage archéologique, Architecture*, I, pls. 6, 8; and Stevens, *A.J.A.* XII, 1908, pp. 398-405); and for its companion temple, that on the Ilissus, no sima was found, though Stuart and Revett (*Antiquities of Athens*, I, ch. II, pl. 6) restored a "conventional" *cyma recta*.

³ To be sure, nothing of the Erechtheum sima has been satisfactorily identified; the extant pieces which come from the main building belong to a Roman repair, the sima of the north porch is unknown, and that of the north door is again a repair, probably Roman. Penrose's attribution to the north porch of a sima in relief (*Principles*, 2d ed., p. 88) cannot be accepted without question. But the entire lintel of the north door is certainly a copy of the original, at least as high as the bottom of the sima; and the sima decoration agrees so well with the other types of anthenia in the north porch that we must consider this, too, a copy. Moreover, the Roman sima of the main building is probably a copy, in profile at least, of the original, for this same profile was copied, with other details of the Erechtheum, in the "Nereid Monument" at Xanthus.

⁴ Messa may have obtained the sima directly from the Erechtheum, since here, too, the frieze is of a dark material, a red stone (Koldewey, *Insel Lesbos*, p. 55), contrasted with white elsewhere; and the very existence of a frieze here points to Attic influence. (H. Thiersch, *Jh. Oest. Arch.* I. XI, 1908, p. 53.)

⁵ Koldewey, *Insel Lesbos*, pls. 21, 28, figs. 10-11.

⁶ It likewise appeared in a few later Doric examples, as the Hellenistic temple of Apollo at Delos (unpublished; phot. of German Inst. at Athens, *Delos* 29), Temple B at Selinus (Koldewey-Puchstein, p. 94, Fig. 67) after 240 B.C., and the portico of Philip V at Delos (Blouet, *Expédition de Morée*, III, pl. 6), ca. 200 B.C.

the traces of painted leaves are still visible, it can hardly have been devoid of color. Probably it was the well-known anthemion, which became characteristic of the *cyma recta*; for we find this ornament carved in relief on the similar simas of Bassae, the second and Hellenistic temples at Delos, and practically all Ionic examples.

The finding of one fragment of the angle geison *G* brings up the question of the restoration of the whole block. The gable sima must have returned along the eaves on the west side for some distance, but it could not have been far, since the

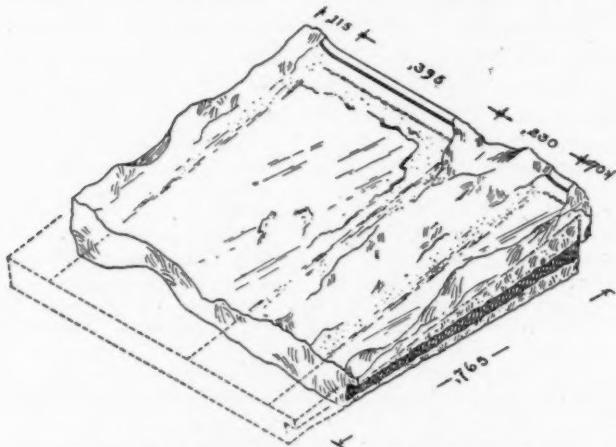


FIGURE 14.—EAVES TILE NEXT TO ANGLE STONE *G*.

numerous eaves tiles show no trace of a sima. One of these eaves tiles, however, is unlike the others (Fig. 14); an additional piece is added at the right of a regular tile, and furnished with a tongue which was intended to overlap a rebate in another stone, thus closing the joint. The length of bed, from front to back, is not the typical 0.720 m. of the eaves tiles all around the west wings, but the special 0.765 m. used only on the west cornice of the southwest wing. The extra strip of tile is 0.185 m. wide, of which about 0.030 m. is the projection of the tongue so that the extra amount of bed is only 0.155 m. Now when we space off the antefixes marking the regular tile

joints on the west cornice of the southwest wing, beginning with those determined by the triglyphs at the north, the last falls 0.385 m. inside the outer face of the south wall. But the north end of stone *G* was only 0.228 m. inside the wall line,

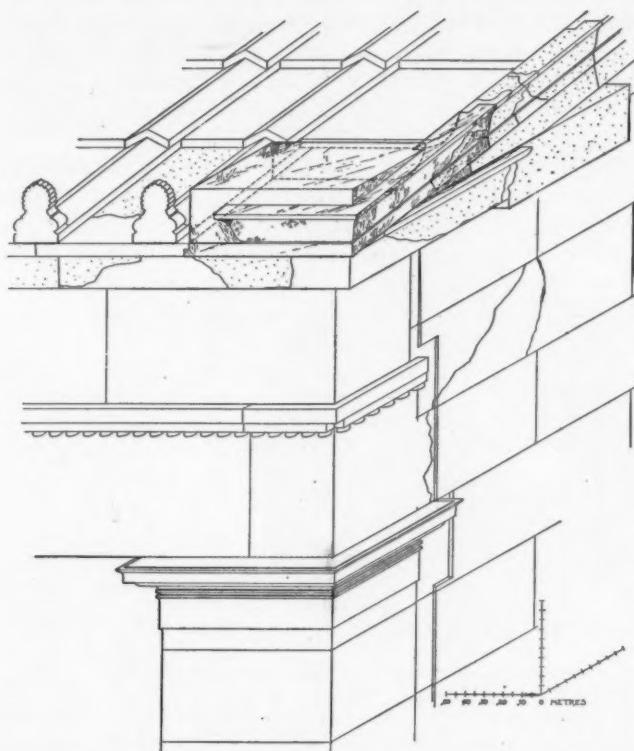


FIGURE 15.—ANGLE GEISON *G* AND ADJACENT STONES.

as shown by a cutting and the stopping of the anathyrosis on the adjacent geison *F*,¹ and a corresponding weather line on the horizontal geison *P* which formed the bed of stone *G*. The actual joint was then 0.157 m. south of the pretended joint marked by the last antefix, and this exactly fits our

¹ Drawn by Bohn, *Die Propyläen*, pl. XVIII, 14 *s*.

special tile.¹ In cases of the omission of the eaves sima, in marble construction at least, the return of the gable sima ends behind a false lion's-head spout,² which is carved on the angle acroterion base.³ The acroterion base continues onward in the Parthenon, to the centre of the first cover tile, so that the first antefix is half cut in relief on the acroterion base;⁴ at Aegina the acroterion base stops short of the cover tile, and the first antefix stands free.⁵ In the Propylaea the evidence of the unique eaves tile points to the Aeginetan type; but at Aegina the small strip of flat tile lying between the acroterion base and the antefix was cut on the acroterion block, while in the Propylaea it was cut on the last eaves tile, with a tongue fitting a rebate on the acroterion base (Fig. 5). The height of the acroterion base, when attached to an antefix as in the Parthenon, equals that of the antefix; at Aegina and Bassae it was free, and was slightly higher. In the case of the Propylaea, the fragment of stone *G* has about 31 cm. of tile surface which must have come behind the acroterion base, limiting the latter to about 50 cm. from front to back, and this, with the given slope of the gable, allows a height of about 28 cm., whereas the antefixes are 0.312 m. high.

WILLIAM BELL DINSMOOR.

ATHENS, 1900.

¹ A dowel hole for a tile on the north edge of horizontal geison *P* exactly fits one in the north edge of our tile, so that the entire bed of the tile (except about 3 cm.) was on *P*; but the north end of *P* is broken off from the main portion, and the two fractures do not fit, so that the amount missing must be determined by the spacing of the tiles.

² No lions' heads were found at Bassae, but Cockerell (*Temple at Bassae*, p. 50) and Blouet (*Expédition de Morée*, II, p. 8) agree in restoring them.

³ In the case of the Propylaea, we should probably omit the lion's head, that it might not be unique in the entire design; the sima could then return back into the acroterion base, after a proper interval, just as the crowning moulding of the geison returns into the plain block on the south wall of the wing.

⁴ Laborde, *Le Parthénon*, Paris, 1848, pl. 45.

⁵ Furtwängler, *Aegina*, pls. 35, 47.

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NOTES ON GREEK VASE PAINTINGS

I. MEANDER OR LABYRINTH

IN the circular field in the interior of a red-figured cylix in the British Museum (*Catalogue*, III, p. 111, E 84), published in *J. H. S.* 1881, pl. X (Fig. 1), Theseus is represented, with sword in hand, dragging the Minotaur from a building which is vaguely defined by a Doric column and a triglyph frieze. C. Smith (*J. H. S.* 1881, p. 60) thought the vertical pattern of meander (labyrinth?) and chequer squares to the right of the column might be the decoration of a door-jamb. But it is too wide for this. An anta is clearly intended; but an anta with such a vertical pattern has no warrant in architecture. The suggestion that the meander squares "have reference to the labyrinth in which the palace of the Minotaur stood" seems to have met with general acceptance, because the meander on some coins of Cnossus clearly refers to the labyrinth. The meanders on the cylix are, however, by no means so distinctly labyrinthine as are those of the wall-painting from Cnossus (*B. S. A.* VIII, p. 104) and the Pompeian graffito (Daremburg et Saglio, III, p. 883), but resemble the purely ornamental meander used by



FIGURE 1.—INNER PART OF CYLIX IN THE
BRITISH MUSEUM.

Duris and others (*e.g.* Hartwig, *Meisterschalen*, pl. XXIII). The meander surrounding the field of this same cylix is more intricate and less interrupted by chequer squares. On a cylix by Aeson (*Ant. Denk.* II, pl. I) and on a third cylix, now at Harrow-on-the-Hill (Wolters, *Sitzb. Mün. Akad.* 1907, pl. 1), on both of which the same scene is represented with some modifications, the meander is still simpler. There is nothing distinctively labyrinthine about the meander on this vertical stripe, and it cannot be dissociated from the meander which surrounds the circular field. This Wolters has unconsciously done (*l.c.* p. 121) by omitting the border from his illustration. The interpretation of the upright band as an indication of the labyrinth has been supplemented by Wolters (*Sitzb. Mün. Akad.* 1907, pp. 113–132), who publishes two vase paintings, one on an extremely poor black-figured lecythus from Vari, now in the National Museum at Athens (Collignon-Couye, p. 283, No. 878, Wolters, pl. 2), the other on fragments of a black-figured scyphus found on the Athenian acropolis (Wolters, pl. 3). In the first of these Theseus is dragging the Minotaur from behind a high upright column (or stele, Δελτ. Ἀρχ. 1891, p. 15) decorated with horizontal bands of zigzags, vertical lines, and circles; in the other are Theseus and Athena, and behind Theseus a high rectangular object covered with horizontal bands of meanders, tangent spirals, and cross-hatchings. Wolters thinks the upright objects in these two vase paintings represent the labyrinth, the nature of which is, as it were, suggested by the meanders. But the column or stele on the lecythus has a base and a projecting top and looks more like an altar (but for its height) than a building. The tradition of the black-figured vases left the scene of the struggle to inference (Robert, *Bild und Lied*, p. 20). The scene represented on the fragments of the scyphus is not clear, and therefore the interpretation of the upright object as the labyrinth is uncertain. The relation between these vases and the red-figured cylices is not sufficiently established.

The three cylices are obviously related. Of the three the one in the British Museum is the best and certainly the oldest in style. Here the drawing is careful and the figure of Theseus stands out well against the background. This is not true of

Aeson's cylix, in which Athena appears and somewhat crowds the scene. But the position of the Minotaur on the cylix in the British Museum is peculiar. His arm drags without resistance, indicating that he has given up the fight, but his body is still so vigorous that his left shoulder is raised higher than the horn by which Theseus has taken hold. The explanation of this inconsistency is to be found in the difficulty presented by the circular field. Had the painter let the body of the Minotaur drag naturally there would not be sufficient room for the hero on the ground line. The great theme is Theseus, and Theseus is given space at the expense of the Minotaur.

The impossible position of the Minotaur was observed by the copyists and both tried to correct it in different ways only to get into difficulties. The painter of the cylix at Harrow-on-the-Hill lowered the Minotaur so that he rests on his elbow, but moved Theseus so far toward the left that knee and foot are cut off by the border and the effective position of the arm is lost. On the cylix in the British Museum the right arm is drawn back so that it fills satisfactorily the space to the left of the body, while the lines of the arm are in pleasing accord with the curve of the border and there is a good possibility for a thrust with the sword. This is lost in the cylix at Harrow.

Aeson, whose cylix is a later version of the theme, has introduced a more elaborate temple order and added the figure of Athena "um die Darstellung personenreicher zu machen" (Robert, *Bild und Lied*, p. 54). He has placed the Minotaur on what appear to be three steps. These steps are very remarkable. Wolters (*l.c.* p. 120) says, "Die Stufen, welche hinter den Säulen erscheinen, sollen wir uns offenbar als Krepidoma des ganzen Baus denken, der sich also nach Art des gewöhnlichen griechischen Tempels auf einem Unterbau von drei Stufen erhebt." But it seems strange that a painter who took pains to indicate correctly the Ionic fluting and who put a neat acroterion on the pediment should have placed the temple steps above and behind the stylobate, where they do not belong. Some less improbable explanation should be sought, and the search may begin with an examination of the portico, with a view to discovering whether Aeson, when he painted the vase, had any particular portico in mind. The reason why he sub-

stituted the Ionic order for the Doric of the other two cylices was that he had fallen under the spell of the recently erected Erechtheum. Vallois (*R. Arch.* 1908, XI, p. 382) notes a resemblance between the capital of the column of the Erechtheum and that painted on the cylix. The broad band encircling the neck of the column is especially worth noticing. It is an unusual feature and was limited, at Athens, to the Erechtheum.¹ That Athenian vase painters took temples for models is made probable by those vases which show pediments with snakes at the corners and suggest, as Vallois (*l.c.* p. 387) notes, the pediment of the old Hecatompedon. Aeson could not have had a better model than the north porch of the Erechtheum. He chose it just as the painter of the cylix in the British Museum chose some Doric portico as the background for his scene. The portico chosen has no connection whatever with the Minotaur and, in relation to the scene, is as vague as a solitary column is on some of the early red-figured vases on which Theseus and the Minotaur appear (Reinach, *Répertoire des vases peints*, I, p. 509).

If one concedes the possibility that Aeson chose the north porch of the Erechtheum as his model, there is nothing difficult in the corollary that he reproduced in his painting the $\beta\omega\mu\circ\tau\circ\theta\eta\chi\circ\hat{o}$, which is known, on the evidence of the Chandler inscription, to have stood in that porch (Jahn-Michaelis, *Arx Athenarum*, p. 101, col. I, 77-79). The altar was rectangular (Petersen, *Die Burgtempel der Athenaia*, p. 96). Perhaps the cylix shows that the altar stood on the north rather than on the west of the opening in the floor (Petersen, *l.c.* p. 97). The uppermost block of the three seen on the cylix is differently treated from those below it.

Whatever the interpretation of the blocks, they saved the painter from the necessity of placing the Minotaur on the ground line or in the impossible position seen on the cylix in the British Museum. But the position of the arms is inconsistent, for they are thrown forward instead of dragging, though the monster is dead, or nearly so. There is no resistance in hand or arm.

¹ It is interesting to remark that, as no acroterion bases were found for the Erechtheum, a small acroterion of the type seen on this cylix has been conjecturally restored. Vase painters usually omit such a detail.

The conclusion reached by a comparative study of the cylices is that the one in the British Museum is the original from which the other two were copied, or else that all three go back to a common original, of which the one in the British Museum would be the most faithful copy. This cylix then must be studied in preference to the other two, in an effort to determine the purpose of the vertical band of meanders and chequers, which Wolters has taken to be the last stage in the development of the labyrinth ground plan. The solution is a simple one, which, of course, holds good for the imitative designs on the other two cylices.

The body of the Minotaur is dragged from behind a wall which the painter represented by a narrow line of red, behind which appears the black of the background. It is important to notice that this line is placed as far to the right as it can be and still reach from architrave to stylobate. The portico is thus represented in side view. If the painter had filled in the segment to the right of the line that marks the wall with solid black or solid red, he would have produced a displeasing effect and would have called attention to the difficulty imposed upon him by the circular field. He therefore effected a compromise by filling the space with a meander-chequer pattern in which both colors appear. The narrow red line representing the wall is the real boundary of the scene to the right. The pattern merely fills the space and, having nothing to do with the scene, approximates in character the encircling border, that it may not by sharp contrast make itself and its real purpose conspicuously obtrusive. A similar principle is at work in the case of a cylix by Duris (Hartwig, *Meisterschalen*, pl. XXII). Rather than leave the right side of the circular field vacant, Duris drew there two large palmettes which he borrowed from the border that surrounds the scene. These palmettes he enlarged and modified. Although they are within the circular field and have nothing to do with the scene, their resemblance to the surrounding border of palmettes takes them out of the class of ordinary stop-gaps. This is true also of the pattern of meanders and chequers on the cylix under discussion.¹

¹ It will be noticed at once that Hartwig regards the palmette on the cylix by Duris as being below the figures (*i.e.* pp. 210, 659). But perhaps Duris did

An exact parallel to the vertical stripe on the three cylices is not at hand. De Witte (*Élise des monuments céramographiques*, I, pl. XVI, p. 33) reproduces from Tischbein a scene in the lower left-hand corner of which is a rectangle ornamented with three horizontal bands, the outer two consisting of chequers, the inner one of a meander with a square of small chequers at the middle. De Witte has no explanation for the pattern, which may simply fill space.

Wolters (*l.c.* pp. 121, 132) emphasizes the unusual size of the pattern on the cylix in the British Museum, but the size is, of course, determined by the space to be filled. So space determines the size of the palmettes on the vase by Duris just cited. On the cylix in the British Museum the pattern is much wider than the encircling border, while on the cylix signed by Aeson there is very little difference. Aeson gives the portico in front view, and has therefore no wall to indicate. He keeps the vertical pattern but makes it narrower. For so large a pattern as that on the cylix in the British Museum he had no need.

All three cylices betray the difficulty of filling the circular field when the ground line is introduced. Vase painters did not feel any necessity of filling the exergue. Occasionally it was filled, though rarely with such unity of theme as marks the Arcesilas cylix. While the careful painter of the cylix in the British Museum consented to leave the exergue empty, he objected to an unfilled segment at the right of the field. There is no warrant for finding in the meander and chequer pattern either a suggestion or a survival of a ground plan of the labyrinth.

II. A CERAMIC NOTE ON BACCHYLIDES, XVI, 97

The scene on the exterior of the fragment of a pinax from Praesus (*B.S.A.* X, pl. III = *Ath. Mitt.* 1906, p. 391; Fig. 2) is not have in mind the poetical situation fancied by Hartwig, p. 659: "Dort (pl. XXII) liegt allerdings die Flügelfigur herabschwebend den Knaben auf ein Blüthenlager nieder." The palmette is a too conventionalized ornament to serve as a bed of blossoms. Another cylix (Hartwig, pl. LXXII) which has the same scene shows that the group is conceived as just rising from the ground in a vertical position. Whether the figures in pl. XXII are given a vertical or a horizontal position, the line of the handles is not at right angles to the vertical axis of the scene — the normal relation on cylices.

interpreted by J. H. Hopkinson (*B. S. A.* X. p. 148) as a male figure wrestling with a sea monster which "apparently lifts its body in the centre of the plate." The man's arms and his bent left leg, which does not touch the monster's back, do not, however, give the impression of a struggle, and the position of his beard indicates that the man was looking upward, not toward the monster. The action of the right leg (the lower part of which is wanting) is not clear. Of the monster enough remains to show that it did not terminate in a human head and shoulders. It cannot then have been a Triton.

The most probable interpretation is that the painting represents Theseus borne up from the depths of the sea by a large fish, a scene immediately subsequent to that depicted by Euphroniis, whose cylix (Furtwängler-Richhold, *Griechische Vasenmalerei*, pl. 5), is the earliest known document for any part of the story contained in Bacchylides, XVI (Jebb, *Bacchylides*, p. 225). The man is bearded and long-haired and wears a belt, like the Theseus on black-figured vases (Stephani, *Der Kampf zwischen Theseus und Minotaurus*, pls. I-III). His sword is made conspicuous by the contrast in color of sheath and handle, and he is shod with sandals. Sword and sandals were found by Theseus when he lifted the rock. The cord hanging from the mass of hair is perhaps the thread of Ariadne, which appears on an Archaic gold plaque from Corinth published by Furtwängler (*Arch. Ztg.* 1884, p. 107). It can hardly be a sheath cord, since it hangs free and is not attached to the sheath. The line from the armpit to the sheath is probably a surface line of the body, to be classed with the line on the thigh. If the hanging cord is really the thread of Ariadne, the scene suffers from contamination (Robert, *Bild und Lied*, p. 52) and contains a reference to a later part of the story.



FIGURE 2.—FRAGMENT FROM
PRAESES.

The scene is laid in the depths of the sea, and the white object just above the straight line which marks the exergue is the foot of a female figure swimming (cf. the amphora by Andocides, *A.J.A.* 1896, p. 3, and the swimming figure on the François vase, Furtwängler-Reichhold, pl. XIII). The shape is that of a human foot and leg and the color is that regularly employed to represent female flesh. The swimmer may be one of the Nereids (*Bacchyl.* XVI, 101, Jebb, *τόθι κλυτὰς ἴδων ἔδεισ' ὀλβίοιο Νηρέος κόρας*).

According to Bacchylides (XVI, 97, Jebb, *φέρον δὲ δελφῖνες ἀλιναέται μέγαν θοῶς Θησέα πατρὸς ἵππιον δάμον*) dolphins, not a Triton, bore Theseus to the palace of Poseidon. Perhaps this is not an innovation on the part of the poet, as Robert (*Hermes*, XXXIII, p. 142) and Furtwängler (Furtwängler-Reichhold, *Griechische Vasenmalerei*, text, I, p. 29) have thought, for the fragment from Praesus surely antedates the poem of Bacchylides by more than a century.¹ The fish here represented is hardly a dolphin, but if the tradition existed that a fish brought Theseus to the surface, the poet might naturally specify the kind of fish.

III. NOTE ON A CYLIX IN PHILADELPHIA

The design on the interior of the cylix recently published by Miss Swindler (*A.J.A.* 1909, pp. 142 ff.) is a good example of the difficulty presented to vase painters by the circular field (cf. Klein, *Euphronios*, p. 35; Poulsen, *Ath. Mitt.* 1906, p. 380). In the scene in question (*l.c.* p. 145) the legs of the youth are conspicuously unequal in length. The right leg, which is so bent that the foot rests on the basis of the altar, is shorter than the other, which reaches down to the curved base line of the scene. The prolongation of the latter, which might have been avoided if the painter had drawn a horizontal ground line, helps to produce the impression that the painter shows a liking for elongated figures (*l.c.* p. 146).

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¹ Cf. Poulsen, *Ath. Mitt.* 1906, p. 382.

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THE CORRELATION OF MAYA AND CHRISTIAN
CHRONOLOGY

ONE of the most important problems in American Archaeology is the correlation of the Maya system of counting time with our own. Long before the first appearance of the white man in the Western World, the Maya race of Central America and Southern Mexico had developed an accurate system of reckoning time and recording events. So accurate indeed is this aboriginal chronology that were it possible to translate a single Maya date into the corresponding notation of our own calendar, the age of all the great cities of the Maya culture would be known, probably more exactly than the age of Nineveh, Babylon, or even Rome. Already the broader lines of Maya History have been traced. The general northward trend of migration within the area has been established. The rise and fall of the larger cities relative to each other have been worked out. Even the periods of time during which they were occupied, expressed in Maya notation, have been reduced to years, as we understand that term. There remains, however, the much more difficult task of bringing Maya Chronology into accordance with our own, and of changing the dates of the one system into the corresponding dates of the other. To accomplish this, some kind of an American Rosetta Stone is required, which will set forth the Maya equivalent of a known date in our own calendar. The nearest approach to such a chronological key is that class of manuscripts known as The Books of Chilan Balam.

The Books of Chilan Balam were copied or compiled in Yucatan by natives during the sixteenth, seventeenth, and eighteenth centuries, from much older manuscripts now lost

or destroyed. They are written in the Maya language in Latin characters, and treat, in part at least, of the history of the country before the Spanish Conquest. Each town seems to have had its own book of Chilan Balam, distinguished from others by the addition of the name of the place where it was written, as: The Book of Chilan Balam of Mani, The Book of Chilan Balam of Tizimin, and so on. Although much of the material presented in these manuscripts is apparently contradictory and obscure, their importance as original historical sources cannot be overestimated, since they constitute the only native accounts of the early history of the Maya race, which have survived the vandalism of the Spanish Conquerors. Of the sixteen Books of Chilan Balam now extant, only three, those of the towns of Mani, Tizimin, and Chumayel, contain historical matter. These have been translated into English, and published by Dr. D. G. Brinton under the title of "The Maya Chronicles." This translation with a few corrections has been freely consulted in the following discussion.

In all, there are five of these chronicles: one from the Mani manuscript, one from the Tizimin manuscript, and three from the Chumayel manuscript. Each of these chronicles contains a more or less consecutive arrangement of twenty-year periods called, in Maya, katuns, after each one of which is set down the event or events that occurred during its course. These accounts are, in reality, little more than chronological synopses of the history of the country. They are called in The Books of Chilan Balam variously: "The Record of the Katuns," "The Record of the Count of the Katuns," "The Arrangement of the Katuns" and "The Order of the Katuns." These names suggest, what the manuscripts are in fact found to contain, sequences of katuns or twenty-year periods during which happened the events recorded.

When it became necessary to fix an event more closely than as occurring within a period of twenty years, the division of time next smaller than the katun was also used. This was called by the Mayas the tun, and contained 360 days, roughly corresponding to our own year. The statement that an event occurred in any given tun of a katun fixed that event to a definite year within a period of twenty years. Just as we might

describe the Discovery of America as occurring in the second year of the tenth decade of the fifteenth century.

Katuns were named after the days with which they began, or, as some contend, after the days with which they ended. This difference of opinion, however, is merely a quibble as to the starting-point, and does not affect the sequence of the katuns, which is the same in either case. In this discussion, katuns are regarded as having been named after the days with which they began. The Maya katun always began with a day called Ahau, and the different katuns were distinguished from each other by a numerical coefficient ranging from 1 to 13 prefixed to the name of this day. The beginning days of katuns, however, did not follow each other in the order that would suggest itself as natural to us, namely: 1 Ahau, 2 Ahau, 3 Ahau, and so on, but in the following order: 13 Ahau, 11 Ahau, 9 Ahau, 7 Ahau, 5 Ahau, 3 Ahau, 1 Ahau, 12 Ahau, 10 Ahau, 8 Ahau, 6 Ahau, 4 Ahau, 2 Ahau, 13 Ahau, and so on. This order, irregular as it may appear, arises quite naturally from the necessities of Maya Chronology. It follows, therefore, that any given katun could not recur until after an interval of 13 times 1 katun or its equivalent 20 tuns, or after a lapse of approximately 260 of our own years. Consequently any event stated as occurring in any given tun of any given katun fixed that event to a definite year in a period of 260 years, which was probably close enough for general purposes. No higher unit of time than the katun appears in The Books of Chilan Balam, though the Mayas of Yucatan may well have known a higher unit, since the Mayas of the Usamacinta region, an older habitat of the same culture, were familiar with a higher period composed of 20 katuns or about 400 years.

The events recorded in the five different chronicles agree fairly well with each other, as Brinton demonstrated in his "Synopsis of Maya Chronology." In some accounts, to be sure, katuns are omitted, and in others they are inserted, and in still others the same katun is repeated twice or even thrice. But when all five are studied comparatively, each acts as a check upon the other, and the context is usually such that there can be but little doubt that the Brinton sequence is, in the main, the actual arrangement of the katuns in their proper order.

According to his arrangement, 70 katuns elapsed from the earliest event recorded in the Chronicles to the Spanish Conquest, a period of nearly 1400 years.

Just after Katun 2 Ahau, in which the first appearance of the Spanish off the coast of Yucatan is mentioned, there is recorded a date in both Maya and Christian notation, apparently with extreme accuracy. This date is the death of a certain native chief called Napot Xiu, which is said to have occurred in a Katun 13 Ahau, while yet 6 tuns were lacking before the end of that katun on the day 9 Imix, which was the 18th day of the month Zip. The chronicler further states that this event took place in the Year of Our Lord 1536.

On the basis of this statement, Mr. Charles P. Bowditch assigned the date 34 A.D. to Stela 9 at Copan, although in so doing he was obliged first to make two changes in the original text. Another correlation of Maya and Christian Chronology is that made by Professor Eduard Seler on the strength of a passage in The Book of Chilan Balam of Mani. This passage states that the beginning day of Katun 5 Ahau, which was in the Year of Our Lord 1593, fell on the 15th day of the month Tzec, although a correction in the text is again necessary, before this statement can be utilized. Professor Seler's correlation gives 1255 B.C. as the date of Stela 9 at Copan, nearly 1300 years earlier than Mr. Bowditch's date for the same monument.

To accept either Mr. Bowditch's correlation or Professor Seler's, two important postulates are necessary:

(1) That the day Ahau is shifted forward from the 2d, 7th, 12th, or 17th positions in the month as found in The Books of Chilan Balam to the 3d, 8th, 13th, or 18th positions so as to agree with the inscriptions of the Usamacinta area. This shift includes a corresponding change of one place in the position in the month of all the other days; and

(2) That this change in no way disturbed the continuity of the sequence of the katuns.

The first of these postulates, it must be borne in mind, necessitates actual changes in the original texts upon which the correlations are based, and the second cannot be verified until we know the exact nature of the change which was made.

For some unknown reason the Mayas of Yucatan had gained

a day over the older cities of their culture. In the Usamacinta area, the day Ahau could be only the 3d, 8th, 13th, or 18th day of a month, and the day Imix, that on which the native chief Napot Xiu is said to have died, could be only the 4th, 9th, 14th, or 19th day of a month. Now, in The Books of Chilan Balam, where this event is recorded, the death of Napot Xiu is clearly stated to have been on a day Imix which was the 18th day of the month; and in the passage from The Book of Chilan Balam of Mani used by Professor Seler, the day Ahau is said to be the 15th day of a month, which Professor Seler would correct to the 17th. Judging from The Books of Chilan Balam, then, it would seem that the Mayas of Yucatan assigned a slightly different position to the days in the month than did the Mayas of the Usamacinta cities, Copan, Quirigua, and Palenque, for example. Or, in other words, that in the course of time a change had come about, so that the day Ahau was no longer the 3d, 8th, 13th, or 18th in the month, but the 2d, 7th, 12th, or 17th, and similarly that the day Imix had shifted from the 4th, 9th, 14th, or 19th position in the month to the 3d, 8th, 13th, or 18th. Indeed, some kind of a change or alteration in the calendar is actually recorded in two of the chronicles in these words, "Then Pop was set or counted in order," Pop being the first month of the Maya year.

There is another serious objection to these correlations, however, which must be explained before either of them can be accepted as definitive. If we substitute the Initial Series assigned by Mr. Bowditch to the year 1536, in the sequence of the katuns as given by Brinton, and count backward to the Initial Series of the Chichen Itza lintel, we find that this latter date occurred, according to Mr. Bowditch, 70 years before even the earliest mention of Chichen Itza in the Chronicles, and 170 years before the founding of the city.

Similarly, Professor Seler's Initial Series for the year 1593 gives the Initial Series of the Chichen Itza lintel a position in the sequence of the katuns over 1300 years before the first mention of that city in the Chronicles.

To explain away this very evident anachronism one of two assumptions is necessary: Either the Chichen Itza Initial Series is not a contemporaneous date, or the sequence of the katuns, as

given by Brinton, falls short of the true sequence by at least 13 katuns in the case of Mr. Bowditch's correlation, and 77 katuns in the case of Professor Seler's. The first of these assumptions is contrary to the generally accepted theory of Maya dates; and the second is contrary to the best reading of the sequence of the katuns.

There is another, though less vital, objection, since it involves no textual changes, to each of these correlations. In the passage used by Mr. Bowditch, the statement that when the chief Naput Xiu died 6 tuns were lacking before the end of the katun, is not literally true, as Mr. Bowditch himself has shown, since in reality 6½ tuns were lacking, or nearly 7. He explains this, however, by saying the scribe who recorded the event took no cognizance of odd days, but merely counted the whole tuns needed to finish the katuns. On the other hand, the date 1255 B.C. for Stela 9 at Copan, based upon Professor Seler's correlation, is altogether too early. It makes the great cities of the Usamacinta area over 3000 years old, an antiquity that may well be doubted, if for no other reason than the remarkable preservation of delicate sculptures under the action of such a destructive vegetation as now covers the cities of this area.

Before submitting my own correlation of Maya and Christian Chronology, it is first necessary to speak of another change, or, better, abbreviation, in the Maya method of recording events, which was introduced after the period of the Usamacinta inscriptions, but before the period of The Books of Chilan Balam. The practice of naming the katuns in The Books of Chilan Balam after the days with which they began has already been explained. In the older area, however, a different method of recording dates was used; namely, the number of cycles, katuns, tuns, uinals, and kins, which had elapsed from a common normal date 4 Ahau, 8 Cumhu to the event recorded, were stated. Throughout the Usamacinta area the date 4 Ahau, 8 Cumhu was universally regarded as the starting-point of Maya Chronology corresponding to our Birth of Christ. The statement that a certain number of cycles, katuns, tuns, uinals, and kins had elapsed from this normal date to the date recorded, fixed such a date so that it could not recur, filling all the given

conditions, for many thousands of years. For example, the date of Stela 9 at Copan in Maya notation of the Usamacinta area is, 9-6-10-0-0 8 Ahau, 13 Pax, which means that 9 cycles, 6 katuns, 10 tuns, 0 uinals, and 0 kins had elapsed from the normal date 4 Ahau, 8 Cumhu to the date recorded, 8 Ahau, 13 Pax. This same date in The Books of Chilan Balam would have been recorded thus: The beginning of Tun 10 of Katun 8 Ahau, no mention being made of any particular cycle. However, as both Mr. Bowditch and Professor Seler have pointed out, there is no actual difference between these two methods, since the katuns in both instances follow each other in the same order, which is the all-important fact. This change from the Initial Series system of dating, practised in the Usamacinta area to the count by katuns found in The Books of Chilan Balam, was probably due to the fact that the latter is very much shorter and less complicated to record than the former, and fully as accurate as far as it goes; though the recurrence of a date which will satisfy given conditions is not so restricted as in the Initial Series.

For a long time it was thought that the Initial Series method of counting time had never reached the cities of Yucatan, but had collapsed in the Usamacinta area before the great northward migrations of the Maya race; and that the Mayas of Yucatan were familiar only with the abbreviated method used in The Books of Chilan Balam.

A few years ago, however, Mr. E. H. Thompson discovered at Chichen Itza, Yucatan, an inscribed lintel upon which an Initial Series was recorded. This find has never been duplicated, and the Chichen Itza Initial Series has remained, up to the present moment, the only one ever found outside of the Usamacinta area.

It would be difficult to overestimate the archaeological importance of this discovery. It is no exaggeration to say that the Chichen Itza lintel has given us the most important inscription yet recovered from the whole Maya area. This importance is due to the following fact: Chichen Itza, by the discovery of this inscription, becomes the only city mentioned in The Books of Chilan Balam to which it has been possible to assign an Initial Series date. Or, in other words, Chichen Itza is the only city in Yucatan which it has been possible to date

relatively with the older cities of the Usamacinta area. Chichen Itza, therefore, is at the present time the only connecting link between the Initial Series chronology of the Usamacinta and the later chronology of Yucatan as given by The Books of Chilan Balam.

We are now in possession of all the facts necessary to an understanding of the correlation I would propose, which depends on the following postulates:

- (1) That the sequence of the katuns as determined by Brinton in his "Synopsis of Maya Chronology" is the correct one;
- (2) That the year 1536 in Christian Chronology occurred sometime during Katun 13 Ahau of Maya Chronology, a postulate which is also necessary in Mr. Bowditch's correlation, as is a similar one in Professor Seler's; and
- (3) That the Chichen Itza Initial Series records a contemporaneous date, a fact now generally admitted by students of Maya Chronology.

These postulates, unlike those upon which the correlations of both Mr. Bowditch and Professor Seler are based, do not ask us to take anything for granted about the positions of the days in the month, which, as we have seen, underwent some kind of a change. For this reason, the correlation which I propose lacks one great possibility for inaccuracy present in the other two. Moreover, the change recorded in the Chronicles states clearly that it has to do primarily with the months — witness the wording, "Pop was set or counted in order." That this change did not disturb the sequence of the beginning days of the katuns upon which my correlation depends would seem to be indicated by the fact that the beginning days of the katuns follow each other in the same order in the Chronicles both before and after this change without an apparent break.

The correlation I propose consists of two parts:

- (1) Fixing the position of the Chichen Itza Initial Series in the sequence of the katuns as derived by Brinton from The Books of Chilan Balam;
- (2) Then finding the date in Christian Chronology which corresponds to the Chichen Itza Initial Series, by using the statement in the sequence of the katuns that the year 1536 occurred in a certain Katun 13 Ahau.

After this one point of contact between the two systems has been established, it is a simple matter of substitution to find the position of any Initial Series in Christian Chronology.

The Initial Series of the Chichen Itza lintel, expressed in Maya notation, is 10-2-9-1-9 9 Muluc 7 Zac. This means that the date 9 Muluc 7 Zac occurred on Kin 9 of Uinal 1 of Tun 9 of Katun 2 of Cycle 10. Our first problem then is to find out with what day Katun 2 of Cycle 10 began, because, in the first place, this katun included the Chichen Itza Initial Series within its span, and in the second place, events in The Books of Chilan Balam are rarely recorded more exactly than as occurring within a given katun. It is found that Katun 2 of Cycle 10 began with the date 3 Ahau 3 Ceh expressed as an Initial Series by 10-2-0-0-0 3 Ahau 3 Ceh. This katun would be recorded in The Books of Chilan Balam simply as Katun 3 Ahau; that is, named after the day with which it began, and omitting the month and the period of time which had elapsed from the normal date 4 Ahau 8 Cumhu, as previously explained.

Our next problem is to find in the Brinton sequence of the katuns a Katun 3 Ahau in which there is a stated occupation of Chichen Itza. For some Katun 3 Ahau contained within its span the Chichen Itza Initial Series which we have regarded as a contemporaneous date; and consequently we ought to find in the Chronicles some Katun 3 Ahau in which Chichen Itza is said to have been occupied.

A close study of the sequence of the katuns shows that there are two katuns beginning with the day 3 Ahau in which an occupation of Chichen Itza is clearly stated, and a third during which the site may have been occupied, though the Chronicles do not record the fact. It remains for us to determine which one of these three katuns corresponds to the Initial Series 10-2-0-0-0 3 Ahau 3 Ceh.

The first of these three Katuns 3 Ahau, which we may designate as A, occurred, according to The Books of Chilan Balam, toward the close of the first period at Chichen Itza shortly before the removal to Champoton. The second, which we may call B, fell about 500 years later near the middle of the period of The Triple Alliance between the cities of Chichen Itza, Uxmal, and Mayapan. The third, C, during which Chichen

Itza probably was occupied, though there is no direct statement to that effect in the Chronicles, occurred about 260 years later, some time before the final destruction of Mayapan. It was during this final period, at Chichen Itza probably, that the strong Nahuatl influence so noticeable in the sculptures of this site was felt. This influence may have been due to the fact that Chichen Itza was conquered about this period by the ruler of Mayapan with the help of Nahuatl mercenaries, to whom the city may have been given as a reward for their share in the conquest.

That A was the only possible one of these three Katuns 3 Ahau which could correspond to the Initial Series 10-2-0-0-0 3 Ahau 3 Ceh is proved by several different lines of evidence:

(1) If we assign the Initial Series 10-2-0-0-0 3 Ahau 3 Ceh to either B or C, we reach, in the case of B, an Initial Series 8-8-0-0-0 6 Ahau 13 Mac for the discovery of Chichen Itza as given by The Books of Chilan Balam, and in the case of C, an Initial Series 7-15-0-0-0 6 Ahau 13 Tzec, for this event. To any one at all familiar with Maya Chronology, such Initial Series as these are impossible as designating contemporaneous events. The earliest contemporaneous date at Copan, the oldest site of the Maya culture now known, is 370 years later than the Initial Series given by B, and 630 years later than the Initial Series given by C.

(2) The use of 10-2-0-0-0 3 Ahau 3 Ceh, as the Initial Series value of A, gives 9-0-0-0-0 8 Ahau 13 Ceh as the Initial Series of the earliest event recorded in The Books of Chilan Balam. This Initial Series, which denotes the beginning day of Cycle 9, must have been of peculiar significance to the Mayas, since every one of their dates which it is possible to regard as contemporaneous, with the exception of a few at the beginning of Cycle 10, all fall within Cycle 9. This cycle saw the rise and fall of all the great cities of the Usamacinta area. A thousand years later, when The Books of Chilan Balam were written, the beginning of the cycle in which occurred their Golden Age must have had a peculiar importance to the Mayas of Yucatan, and must have seemed to them an extremely appropriate date from which to start their chronicles. That the land of Nonoual, from which they claim to have come, may have been

mythological, as Dr. Brinton has shown, strengthens our identification of 10-2-0-0-0 3 Ahau 3 Ceh as the Initial Series corresponding to A. In the departure from Nonoual in 9-0-0-0-0 8 Ahau 13 Ceh, which this Initial Series value for A gives, we have not the record of an actual historical event, but of a mythological event. The land of Nonoual may well be a mythological place agreed upon, perhaps by the priesthood, at a much later time as the original home of the Maya race, and the beginning of Cycle 9 must have seemed to them a very appropriate date for that migration to have started. The use of either B or C as corresponding to 10-2-0-0-0 3 Ahau 3 Ceh, on the other hand, again gives impossible Initial Series for the opening event in The Books of Chilan Balam from the Maya point of view.

It is very significant that the use of A gives such an important round number in Maya Chronology as the beginning of Cycle 9 as the date of the earliest event recorded in the Chronicles, *i.e.* the departure from the former home of the race.

(3) A third reason for choosing A as corresponding to 10-2-0-0-0 3 Ahau 3 Ceh is that, if we do so, a very natural historical cause for the decay of the Initial Series system of reckoning time develops. In 10-3-0-0-0 1 Ahau 3 Yaxkin, about ten years after the Initial Series of the Chichen Itza lintel, the Mayas abandoned that site according to The Books of Chilan Balam, and removed to Champoton, on the west coast of Yucatan, near Campeache. Including the forty years' wanderings in the wilderness before reaching Champoton, and another forty years after the abandonment of Champoton, in all 360 years elapsed before the Mayas returned, and occupied Chichen Itza a second time. During this long exodus, a great part of which was spent in wandering without fixed homes, the knowledge, or at any rate the general use, of the Initial Series may have been forgotten. The use of either B or C, on the other hand, develops no long gap, like the removal to Champoton, in the sequence of the katuns to account for the discontinuance of the Initial Series.

(4) A fourth reason for using A as corresponding to 10-2-0-0-0 3 Ahau 3 Ceh is, that if we omit the part dealing with the month in the passage from The Book of Chilan Balam

of Mani used by Professor Seler in his correlation, the correlation I propose receives satisfactory corroboration from this source. My correlation assigns to Stela 9 at Copan a date between the years 284 and 304 A.D., depending upon what tun of Katun 13 Ahau coincided with the year 1536. Using the passage in The Book of Chilan Balam of Mani, amended as I propose, which states that the first tun of Katun 5 Ahau occurred in 1593, a date 282 A.D. is reached for Stela 9 at Copan. This date 282 A.D. is within 2 years and 22 years respectively of the two limits 284 and 304 A.D. reached by my correlation for this monument. Moreover, if we care to assume that the date of Naput Xiu's death was 9 Imix 19 Tzec instead of the 9 Imix 18 Tzec actually recorded, as Mr. Bowditch was obliged to do in order to reach his correlation, my date for Stela 9 at Copan becomes 294 A.D., or within 12 years of the date for this monument reached by a different process based upon a different passage in the Chronicles.

A comparative idea of the three correlations presented in the foregoing discussion is best gathered by a review of the dates in Christian Chronology which they assign to the same Initial Series,—Stela 9 at Copan, for example. Professor Seler's date of 1255 B.C. for this is by far the oldest; Mr. Bowditch's date, 34 A.D., comes next. My own correlation assigns a date to this monument somewhere between the years 284 to 304 A.D., which an assumption made by both Mr. Bowditch and Professor Seler in their correlations would narrow to 294 A.D. Finally, the passage from The Book of Chilan Balam of Mani, as I have amended it, gives the date of this monument as 282 A.D.

I suggest, in conclusion, that in view of the evidence presented, the correlation which I have proposed is less open to error than either of the other two for the following reasons:

- (1) It involves no textual changes in the original sources as do the other two;
- (2) It develops no anachronism as do the other two; and
- (3) It presumes less in its postulates than do the other two.

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ARCHAEOLOGICAL DISCUSSIONS¹

SUMMARIES OF ORIGINAL ARTICLES CHIEFLY IN CURRENT PUBLICATIONS

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GENERAL AND MISCELLANEOUS

The Evolution of Quaternary Art.—In *R. Arch.* XIII, 1909, pp. 378-411 (13 figs.), Abbé HENRI BREUIL gives a critical account of the discoveries, investigations, and theories of the late Édouard Piette and traces the development of quaternary art. Sculpture in the round preceded reliefs and linear drawing in general, yet the earliest drawings are hardly less early than the earliest sculptures in the round.

The Cult of the Sun in Prehistoric Times.—In *R. Arch.* XIII, 1909, pp. 305-357 (31 figs.), and XIV, 1909, pp. 94-123 (16 figs.), J. DÉCHELETTE discusses the cult of the sun in prehistoric times. Starting with the premise that mere decoration is not the purpose of the earliest art, he passes in review prehistoric monuments of different classes from places as widely separated as Egypt and the Scandinavian peninsula. The sun's disk drawn by a horse is found in the North, also at Syra, and, in degenerate form, on whorls from Troy. The "swastika," curved at first and later angular, takes the place of the disk. The triskelion is also a solar symbol. The boat of the sun led by a dolphin appears on some flat clay vessels from Syra (1500 B.C. at latest). The boat with swans' heads at bow and stern is also the sun's boat. This degenerates into a mere ornamental pattern as time goes on. Evidently it ceased to be understood, at least in some places. In Mycenaean and "Dipylon" art the horse, the swan, the disk, and the "swastika" have solar significance. The amphora from Pitane, some Cretan ossuaries, and various other monuments are interpreted in this sense. As anthropomorphism developed, the place of the sun's disk in a boat was

¹ The departments of Archaeological News and Discussions and of Bibliography of Archaeological Books are conducted by Professor BATES, Editor-in-charge, assisted by Professor C. N. BROWN, Miss MARY H. BUCKINGHAM, Mr. L. D. CASKEY, Miss EDITH H. HALL, Mr. HAROLD R. HASTINGS, Professor ELMER T. MERRILL, Professor FRANK G. MOORE, Professor CHARLES R. MOREY, Miss M. L. NICHOLS, Dr. JAMES M. PATON, Professor LEWIS B. PATON, Professor A. S. PEASE, Professor S. B. PLATNER, Dr. N. P. VLACHOS, and the Editors, especially Professor MARQUAND.

No attempt is made to include in this number of the JOURNAL material published after December 31, 1909.

For an explanation of the abbreviations, see pp. 140, 141.

taken by a human figure. The gorgon has solar connections and the serpents of the aegis may be misunderstood swans' necks. The god with a wheel in Gaul is, though identified with Jupiter, the sun-god. Even in modern village festivals in France, the wheel and the boat survive from the prehistoric sun-worship.

The Art of Petra.—In *Memnon*, III, 1909, pp. 49-76 (7 figs.), J. THOMÄ-QUERUM reports the results of a recent expedition of the German Archaeological Institute to the ruins of Petra under the leadership of the Director, Professor Dalman. All of the remains have been described before, but the photographs are new, and a number of them are of quite unfamiliar objects.

Casian Researches.—In *Memnon*, III, 1909, pp. 1-48, A. WIRTH gathers the evidence which indicates that the primitive race, which he calls the Casian, or Caucasian, from the fact that its modern representatives are settled in the Caucasus Mountains, once spread over southern Europe, western Asia, and northern Africa prior to the settlement of either Semites or Indo-Europeans in these lands. This is proved by the linguistic affinity of Caucasian, Basque, and Berber; by the traditions of the migration of races; by the physical characteristics of the non-Aryan races of the Mediterranean; by archaeological evidence of the similarity of houses, dress, ornaments, burial, and religious rites; and by the study of primitive geographical names in all lands bordering upon the Mediterranean. Names of the Caucasian type are found in Asia Minor, Asia, Eastern Balkans, Greek Archipelago, Western Balkans, Epirus, Greece, the Alps, Germany, Aquitania, Great Britain, the Iberian Peninsula, North Africa, Sicily, Italy, Elam, Syria, and among the Slavonians. This proves the existence of a primitive non-Semitic and non-Aryan race, which must be discriminated as one of the leading races of mankind, and which is not to be identified with Mongol, Hamitic, or any of the other main branches of the human race. For this race the name Casian is preferable to Hittite, Euro-African, or Mediterranean, because Kas was the name by which these peoples designated themselves. Caucasian, which is derived from Kas, is less desirable, because in current usage the Caucasian, or white race, includes Aryan and Semites.

Two New Sabaean Inscriptions.—In *Or. Lit.* XII, cols. 337-339 (pl.), M. HARTMAN publishes two brief Sabaean inscriptions discovered by H. Burchardt. One of them contains a new clan name, Nadräñ (?). The other belongs to the same class as the Ta'lāb inscriptions.

Southeastern Elements in the Prehistoric Civilization of Servia.—In *B.S.A.* XIV (session 1907-08), pp. 319-342 (14 figs.), MILOJE M. VASITS discusses the vases, pottery, and other prehistoric remains found in Servia, especially at Vinča, establishes their connection with the Prehellenic civilization of the Aegean regions, and concludes that the prehistoric settlements of Servia "were formed under the continuous influence of a southeastern civilization. This disposes of the 'northerly' influence in the Aegean, and of the other theory of a parallel development of individual branches of one and the same race." His conclusions are disputed by M. S. THOMPSON and A. J. B. WACE (*Cl. R.* XXIII, 1909, pp. 209-212), who argue that connection with Thessaly or Troy is no proof of Aegean influence in Servia; that Servian pottery is very different from Cretan; that Thessalian culture is non-Aegean, and it is doubtful if there is dependence between it and Servian culture.

Scandinavian Archaeology.—In *Fornvärnen*, III, 1908, pp. 1-13 (27 figs.), T. J. ARNE discusses discoveries of the Stone Age made by him in Syria in 1907; pp. 14-27 and 101 (fig.) E. OLSEN publishes a plaque of bone 4.8 cm. square with a Runic inscription of thirty-two letters running round the edge. It was found in a grave at Lund in 1906, dates from about 1000 A.D. and was, perhaps, an amulet; pp. 27-43 (28 figs.), C. WIBLING describes his excavations in northwestern Skåne in 1906; pp. 49-86 (39 figs.), G. HALLSTRÖM continues his discussion of north Scandinavian rock-carvings; pp. 87-92 (8 figs.), M. LEIJONHUFVUD discusses rock-carvings found a few years ago near Blomberg; pp. 105-127 (60 figs.), C. WIBLING, O. ALMGREN, and K. KJELLMARK discuss stone-age remains near Råå in Skåne; pp. 178-200 (11 figs.), A. LINDBLOM discusses an old Roman type of tower in churches of Östergötland; pp. 201-311 (217 figs.) give a list of the acquisitions of the Historiska Museum at Stockholm in 1908.

Archaeology in Croatia.—In the *Vjesnik* of the Croatian Archaeological Society at Zagreb (Agram), X, 1908-09 (Zagreb, 1909, C. Albrecht, 260 pp.; in the Croatian language), the following articles are of interest to archaeologists: pp. 120-134 (21 figs.), V. HOFFILLER describes the discoveries, chiefly bronzes and pottery, made in the ancient cemetery at Velika Gorica; pp. 149-222 (176 figs.), J. BRUNŠMID continues his catalogue of the ancient sculptures in the Croatian National Museum at Agram, giving a brief account of each monument with its bibliography; pp. 231-237 (7 figs.), J. BRUNŠMID continues his account of the prehistoric objects from Srijem.

Ancient Metrology in the Light of Modern Chinese Usage.—C. F. LEHMANN-HAUPT, in *Z. Ethn.* XLI, 1909, pp. 635-643 (fig.), describes a modern Chinese balance and compares the two scales on its beam with Babylonian, Egyptian, and Roman weights. He is convinced that much light may, in a similar way, be cast on many an ancient custom or implement, for old things live on in China as nowhere else in the world.

Museums, Libraries, and Cellars.—In *R. Arch.* XIV, 1909, pp. 267-270, S. REINACH strongly advocates the desirability of separating the contents of museums and of libraries so that general exhibition rooms and easily accessible shelves shall contain only what is of general utility, the other material in the collections being removed from the public and placed where it can be consulted by specialists.

The Greek Papyri and the New Testament.—In *Bibl. World*, XXXIV, 1909, pp. 151-158 (2 pls.), G. MILLIGAN gives an account of the papyri found in Egypt in recent years, describing the technical processes of their manufacture, giving the history of their discovery, and finally their importance for the student of the New Testament.

Charles Perrault, Critic of Art.—In *R. Arch.* XIV, 1909, pp. 203-215, S. REINACH quotes and discusses passages from the *Parallèle des anciens et des modernes, en ce qui regarde les arts et les sciences* (1688), in which ancient art is criticised and found inferior to modern art. Charles Perrault was contrôleur général des bâtiments du roi under Louis XIV.

EGYPT

Palaeolithic Implements from Upper Egypt.—In *Z. Ethn.* XLI, 1909, pp. 735-744, G. SCHWEINFURTH describes, from a geological point of

view, the old quarries used by the Egyptians of the Stone Age and the implements found in them.

Notes on Some Egyptian Antiquities.—In *S. Bibl. Arch.* XXXI, 1909, p. 255 (pl.), W. L. NASH publishes notes on (1) a bronze axe-head, inscribed "Men Kheper Ra, beloved of Amen, when he stretched the cord in Zezer Amen Khut," referring to the foundation of a temple which may be either that which stood above the eleventh dynasty temple of Mentuhetep, or that recently discovered at the entrance to the valley leading to the temple of Hatshepsut; (2) a small vase of green glazed faïence inscribed with hieroglyphs; (3) a steatopygous figure of doubtful date; a fusiform object of hard sandstone inscribed, Ra Nefer Ab—Psamthek II, resembling possibly the roll of papyrus held in the hand of the king at his coronation ceremony.

The Carved Slates.—In *S. Bibl. Arch.* XXXI, 1909, pp. 204–211 (2 pls.), F. LEGGE reviews the various interpretations suggested for the so-called "slate palettes," which he believes to have been votive shields (see *S. Bibl. Arch.* XXII, 1900, p. 135), and holds that the scenes shown on them are "scenes of war in which almost every animal there portrayed represents some tribe or clan engaged"; he then discusses Loret's theory as to the identity of the tribes represented under the guise of the attacking animals, and attempts further to identify various nome-standards by means of these carved slates.

Egyptian Jewelry in Berlin.—In *Ber. Kunsts.* XXX, 1909, cols. 269–275 (10 figs.), Schäfer gives a brief account of the Egyptian jewelry in the Berlin museum, describing particularly a pair of inlaid gold ear-rings dating from the end of the second millennium B.C.

A Portrait of Queen Tiyi in Brussels.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 9–11 (2 figs.), J. CAPART publishes a portrait of Queen Tiyi now in Brussels and identifies it as part of the relief from Thebes published in *Annales du Service des antiquités de l'Égypte*, IV, 1903, pp. 177–178.

The First Appearance of the Hittites in the Egyptian Inscriptions.—In *Or. Lit.* XII, 1909, cols. 427–429, W. M. MÜLLER discusses the fact that no express mention of the Hittites is found in Egyptian texts before the time of Thutmosis III. In the reign of this king, however, the orthography of the name of the Hittites is firmly established, which implies that the Egyptians must have been in relations with them as early as the period of the Hyksos. This was not far removed from the period in which the Hittites are known to have attacked Babylon. It is to be expected, accordingly, that mention of them may be found as far back as the twelfth Egyptian dynasty, but not earlier, as the form of orthography indicates. The present absence of allusion in early Egyptian texts is to be regarded as accidental.

The Foreigners of Memphis.—In *Rec. Past.* VIII, 1909, pp. 131–136 (15 figs.), W. M. FLINDERS PETRIE discusses briefly some of the small terra-cotta heads of foreigners found in the foreign quarter at Memphis in 1908. He recognizes Sumerian, Semitic, Persian, Indian, Scythian, and Tibetan types. He also calls attention to the eighteenth dynasty tablets with figures of ears on them found at the temple of Ptah.

The Egyptian Nomes.—In *Abh. Sächs. Ges.* XXVII, 1909, pp. 860–898 (No. 25), G. STEINDORFF discusses the Egyptian nomes and their politi-

cal development. He gives the names of the nomes as they are recorded at different times. He finds no proof that they were ever independent little countries. The division of Egypt into two administrative parts, Upper and Lower Egypt, is discussed in its different forms. A division into three parts is unknown before the middle of the first century after Christ.

The Earliest Marriage-Contracts.—In *S. Bibl. Arch.* XXXI, 1900, pp. 212–220, F. L. GRIFFITH offers a new translation, with commentary and transcription, of the two papyri in the Louvre collection of the twenty-sixth dynasty which contain the two earliest known marriage-contracts, dating probably about 590 B.C. and 547 B.C.

The Difficulties at Elephantine in the Year 411 B.C.—In *Z. Assyr.* XXIII, 1909, pp. 187–196, A. VAN HOONACKER discusses the Aramaic papyrus published by Euting and Sachau, in which the Jews of Elephantine complain that their temple of Yahu has been destroyed by the Egyptians; and endeavors to show that the ground of the Egyptian's opposition to this temple was that it was irregular, even from a Jewish point of view, and that consequently there is no conflict between this document and the Deuteronomic demand for the centralization of worship.

A Marble Head of a Libyan.—A marble head of a Libyan in the collection of F. W. VON BISSING is published by the owner in *Arch. Mitt.* XXXIV, 1909, pp. 29–32 (pl.). He dates it between 50 B.C. and 50 A.D.

The Fish as a Symbol of the Soul.—In *Arch. Rel.* XII, 1909, pp. 574–575 (fig.), W. SPIEGELBERG calls attention to an Egyptian sarcophagus of Hellenistic or Roman date upon which a fish appears above a mummy which is lying on a bier. The fish seems to be a symbol of the soul; and this suggests a possible origin for the Christian symbol.

The Geography of Eastern Africa in its Connection with Egypt.—E. SCHIAPARELLI, in *Rend. Acc. Lincei*, XVIII, 1909, pp. 49–75, prefaces a discussion of the topography of the regions east and south of Egypt, which are referred to very obscurely on Egyptian monuments, with a description of those regions as they are to-day. Among the causes of the vagueness of the monuments he emphasizes the fact that in ancient times as to-day the change in the nature of the country as one went south on the mountains or in the valley must have been very gradual, and the boundaries, ethnographically speaking, must have been very indistinct between the peoples with varying admixture of negro and Caucasian blood. The negroes, he insists, having no fear of malaria have always been able to hold regions uninhabitable by the whites. Among topographical references discussed are: "the regions of the south"; "the land of the negroes"; Tachonti; Chontihonofe; Cush, etc. These terms, the writer says, have in addition to a definite, restricted meaning, in very many contexts a vaguer and more extensive use.

BABYLONIA AND ASSYRIA

The Chronology of Berossus.—In *Mitt. Vorderas. Ges.* XIII, 1908, pp. 231–277, P. SCHNABEL investigates the chronological scheme of Berossus as a whole, and shows that he regards the entire duration of the world as 600 *sars* of years, or 2,160,000 years. This he divides into, first, seven periods of 240 millenniums each, the seven ages of creation; second, a period of 432,000 years for the kings before the flood; third, a period of 36,000 years for

the kings after the flood; and, fourth, a period of 12,000 years for the times of the end. He next considers the fact that both Callisthenes and Berossus, deriving their information independently from Babylonian sources, place the year 2232 B.C. as the beginning of historical times in Babylonia. This date is to be identified with the beginning of the first dynasty of Babylon. The sum total of the kings in Berossus is 1501 years, and agrees with the sum total of the Babylonian List, if we allow for the overlapping of dynasty II and dynasty I. This shows that Berossus must have depended upon Babylonian sources similar to the List of Kings, but the figures that he gives for the particular dynasties do not agree with the figures of the Babylonian List. This Schnabel seeks to explain by the hypothesis of a different reckoning of dynasties and a transposition of some of the figures.

Rim-Sin and Samsuiluna.—In *Z. Assyr.* XXIII, 1909, pp. 73-89, A. UNGNAD presents evidence to show that although Rim-Sin was defeated by Hammurabi, he was not overthrown by him, but retained his sovereignty over the region of Emutbal, and at the beginning of Samsuiluna's reign took advantage of the general confusion in Babylonia to conquer the city of Uruk. He cannot have remained long in possession of it, for in the eleventh year of his reign Samsuiluna rebuilt the wall of Uruk. It was, accordingly, in his tenth year that Samsuiluna captured Uruk and drove Rim-Sin out of Babylonia.

A Contract from Hana.—In *J. Asiat.* XIII, 1909, pp. 149-156, F. THUREAU-DANGIN publishes an additional tablet from the kingdom of Hana, from which three or four documents are already known. It contains a contract executed under a king who bears the Kassite name of Kashtiliashu, and relates to the sale of a tract of land situated in the territory of Tirqa, the capital city of Hana.

Amalek in the Babylonian Inscriptions.—In *Or. Lit.* XII, 1909, cols. 241-245, H. GRIMME gathers evidence to prove that the familiar Babylonian geographical name Meluha is etymologically identical with the Old Testament name Amalek. From this he concludes that Amalek was a Semitic people; and, by a comparison of Babylonian texts with the Old Testament, is able to give a fairly complete history of the region lying between the Egyptian delta, Northwestern Arabia, and the south of Judah, from about 2500 B.C. down to the destruction of the Amalekites by Saul.

The Name Abraham in Babylonian.—In *Exp. Times*, XXI, 1909, pp. 88-90, S. LANGDON calls attention to errors which have been made with regard to the name of Abraham occurring in a certain contract-tablet in the Royal Museum at Berlin, catalogued as Vat. 1473, but gives several translations of texts of other tablets also in the Berlin museum to prove that the name Abram was current in the days of Hammurabi in Babylonia. This he interprets as meaning "love the father."

Aramaic Inscriptions from Babylon.—In *Eph. Sem. Ep.* III, 1909, pp. 12-19, M. LIDZBARSKI reprints the Aramaic dockets of Babylonian cuneiform tablets published by A. T. CLAY in *Old Testament and Semitic Studies in Memory of W. R. Harper*, Vol. I, pp. 285-322, so far as these inscriptions have not been published already in *Eph. Sem. Ep.* II, pp. 203 ff. He also reports Clay's additions to earlier discussions of these inscriptions. The texts are interesting as showing that the old Sumerian name of the god En-lil was pronounced El-lil and was in use down to the latest times in

Babylonia. They also contain a number of Jewish names compounded with Yahweh.

The Babylonian God Tamûz.—In *Abh. Sächs. Ges.* XXVII, 1909, pp. 698-738 (No. 20), HEINRICH ZIMMERN puts together the information concerning the god Tamûz derived from inscriptions. The name is Sumerian and meant originally "True Son of the Depths of the Water." Tamûz was a god of vegetation, and his astral connections are of relatively late origin. His relations to other gods, his cult, and the myths relating to him are briefly discussed.

A Hymn to Ishtar.—In *Mitt. Vorderas. Ges.* XIII, 1908, pp. 206-230, A. SCHOLLMAYER discusses the Hymn to Ishtar first published by Pinches in *S. Bibl. Arch.* XVII, and also several duplicates of parts of this hymn in Reisner's *Hymns* and Haupt's *Akkadian and Sumerian Hymns*. The hymn is given in full in transliteration and translation with a commentary. It is a Sumerian and Babylonian bilingual, and it contains in its first part a lament of the goddess over the destruction of her city and temple by a foreign enemy, perhaps the destruction of Erech by the Elamites; and in the second part a song of praise of herself uttered by the goddess.

Babylonian Orientation.—In *Z. Assyr.* XXIII, 1909, pp. 196-208, M. JASTROW, Jr., discusses the order in which the Babylonians enumerated the points of the compass. Against the view of Kugler that they began with the north, he maintains that the evidence is insufficient, and that for astrological purposes the south was taken as the starting-point. Another method of orientation beginning with the east was usual in acts of worship.

The Number Forty among the Semites.—In *Abh. Sächs. Ges.* XXVII (No. 4), 1909, pp. 91-138, W. H. ROSCHER discusses the significance of the number *forty* among the Semites. In *Sitzb. Sächs. Ges.* LXI, 1909, pp. 15-206, he examines the lore attached to this number by the Greeks and by other peoples.

Anklets as a Sign of Nobility among the Semites.—In *Or. Lit.* XII, 1909, cols. 381-382, W. M. MÜLLER calls attention to a statement of the Elephantine papyrus that an offending Persian official was deprived of his anklets, and points out that on the old Egyptian monuments distinguished Asiatics are often represented wearing heavy rings of gold or silver around the ankle, and that these were evidently regarded as badges of high office.

The Relative Value of Gold and Silver in Babylonia.—In *Or. Lit.* XII, 1909, cols. 382-384, F. THUREAU-DANGIN calls attention to a tablet of the time of Hammurabi which shows that in his period silver had $\frac{1}{6}$ the value of an equal weight of gold, and copper $\frac{1}{600}$ of an equal weight. These relations correspond to the old Babylonian sexagesimal system, and it is probable, therefore, that they were already fixed by the Sumerians.

Measures of Capacity in Archaic Texts from Tello.—In *J. Asiat.* XIII, 1909, pp. 245-248, A. DE LA FUË subjects the ancient measures of capacity from Tello to a reexamination and comes to the conclusion that his statements in *J. Asiat.* VI, 1905, need modification. The facts are, that the *gur sag-gal* was different from the *gur lugal*, or *gur Agade*; that the *gur sag-gal* contained 144 *qa*, and that the *gur sag-gal* and its subdivisions were represented in texts of the pre-Sargonid period by a double system of notation: the first, which was commonly employed, used a series of curved

lines; the second employed cuneiform signs in addition to the curved symbols.

Oriental Cylinders.—In *R. Arch.* XIII, 1909, pp. 297–304 (pl., reproducing eight cylinders), L. DELAPORTE describes nine Oriental cylinders in the collection of the late Albert Maignan. On three of them Eabani (part man and part bull) appears in conflict with a beast or with Gilgames. On the third of these are three scenes, in one of which a nude woman appears. This cylinder is Babylonian. On the fourth cylinder are a seated god and two standing persons, one of whom wears a horned tiara. Two cylinders exhibit a standing female deity before whom is a standing bearded person. Both cylinders, like No. 4, are inscribed. On the seventh cylinder are four standing figures, perhaps all deities. Before the chief divinity is the symbol of the moon-god Sin. This is also on Nos. 4, 5, and 6. On the eighth cylinder are two Syro-Cappadocian scenes: a seated deity before whom stands a nude female, and a standing deity opposite another standing person. The ninth cylinder, not published, is very badly executed. On it two rows of animals are represented. *Ibid.* XIV, 1909, pp. 250–253 (pl.), L. DELAPORTE publishes a new seal of the scribe Ur-Enlil, son of Kasá(g)-ab, of the period of the kings of Ur. It is in the collection of Mr. J. Bessonneau. Toward a god, seated to left, a divinity advances leading a carefully shaven person who holds his right hand before his face. In the field before the seated deity is the crescent surmounted by a disk in which is a star of four points between which are groups of undulating rays. Between the other persons is the lion-headed eagle. The support of the seated deity is a goat to whose head is attached a cord which passes over the god's shoulder and is held by his left hand. Other examples of animals as supports are cited. Why this scribe possessed two seals is not known.

Ashurbanipal and the Assyrian Civilization of his Times.—In *Alt. Or.* XI, pp. 1–44 (17 figs.), F. DELITZSCH gives a survey of the history of the period of Ashurbanipal and of the civilization of that period in the light of the most recent researches, particularly those that have lately been carried on by the German expedition at the city of Ashur. The sketch contains an account of Ashurbanipal's conquests and of the legends based upon them by Greek historians; of hunting, military organization, architecture, sculpture, furniture, trade, literature, and music. Valuable supplements contain extracts from Greek historians, and a chronological table of the Assyrian monarchs based upon the latest discoveries in the excavations of Ashur.

Assyriological Literature.—In *J. Asiat.* XIII, 1909, pp. 179–224 and 359–418, C. FOSSEY gives an elaborate account of the progress of Assyrian science in its various branches during the years 1905–1906.

SYRIA AND PALESTINE

Phoenicians, Judaeo-Hellenes, and Berbers in the Basin of the Mediterranean.—In *J. Asiat.* XIII, 1909, pp. 225–234, M. SCHWAB discusses two works recently published by N. Slouschz on the Hebraeo-Phoenicians and the Judaeo-Hellenes and Judaeo-Berbers, in which he maintains that as early as the eleventh century B.C. the Hebrews and Phoenicians constituted a homogeneous race, which spread through colonies to all parts of

the Mediterranean; and that the descendants of these early settlers constitute the Jewish colonies that are now to be found in northern Africa and Europe. The peculiar traits of separateness from other races and of persistence of type, that are supposed to be characteristic of the Jews, really date back to the ancient period of the Hebraeo-Phoenician colonies.

The Monuments at the Nahr el-Kelb.—In *Alt. Or.* X, 1909, Pt. 4, pp. 1-27 (4 figs.), H. WINCKLER investigates anew the antiquities situated at the mouth of the Nahr el-Kelb, or Dog River, near Beirut. These consist of three monuments of Rameses II and one each of Tiglath-Pileser I, Ashurnasirpal, Shalmanezer II, Adad-nirari, Tiglath-Pileser III, Sennacherib, Esarhaddon, and Nebuchadnezzar. There are also remains of the ancient road and of the Roman road that ran around the promontory.

Ancient Palestinian Topography.—In *J. Bibl. Lit.* XXVIII, 1909, pp. 26-33, G. A. BARTON enumerates the places in Palestine which may be regarded as definitely identified with Biblical sites, and discusses other proposed identifications which seem to him uncertain.

The Scene of Abraham's Sacrifice.—In *Exp. Times*, XXI, 1909, pp. 86-88, A. H. SAYCE claims that the temple-hill at Jerusalem was the scene of Abraham's sacrifice, that it had already been a sacred spot in neolithic times, that subsequently there arose here a high-place formed of monoliths such as that discovered by Macalister at Gezer, and that here in the sacred grove Abraham found the ram. Before the age of David, the monoliths had made way for a "temple," perhaps under Hittite influence. In the history of this temple-hill at Jerusalem, therefore, he finds a parallel to that of the rock-shrine which he discovered in Nubia near Dirr, where the same persistence of a cult can be traced.

Studies in Galilee.—In his *Studies in Galilee* (Chicago, 1909, University of Chicago Press, xv, 154 pp.; 33 figs., 8vo, \$1.12), Dr. G. W. G. MASTERMAN discusses the topography of Galilee, taking up in turn its physical features, boundaries, and chief towns; its inland fisheries; Gennesaret, Capernaum, Chorazin, and Bethsaida; the ancient synagogues; and, finally, Galilee in the time of Christ.

A Temple of Mithra in Galilee.—In *Or. Lit.* XII, 1909, cols. 425-427, R. EISLER calls attention to a passage in the *Sohar* of Moses of Leon which shows that a sanctuary of Mithra must have existed in Galilee, and that the chief rites of the cult of Mithra were known to the Jewish Rabbis of the early Christian centuries.

The Inscription of Zakir, King of Hamath.—In *Eph. Sem. Ep.* III, 1909, pp. 1-11, M. LIDZBARSKI reprints the Aramaic inscription on the stele of Zakir published by Pognon in *Inscriptions sémitiques*, Paris, 1907-08, and summarizes the results of the discussions of this inscription that have gone on during the past year. The text is accompanied by a translation and commentary. In *J. Bibl. Lit.* XXVIII, 1909, pp. 57-70, J. A. MONTGOMERY publishes some additional notes and restorations.

The Teima Stone.—In *Bibl. World*, XXXIII, 1909, pp. 424-425 (pl.), E. J. GOODSPEED gives an account of the history of the famous Teima Stone of the Louvre, together with a concise statement of its importance and significance as an early example of Aramaic epigraphy and as "affording an unusual glimpse of the religious life of ancient polytheistic Arabia, in the time of Nehemiah the governor, Ezra the scribe, and Geshen the Arabian."

Aramaic and Phoenician Ostraka. — In *Eph. Sem. Ep.* III, 1909, pp. 19–29 (3 pls.), M. LIDZBARSKI publishes eight ostraka that are found in the library at Strassburg, and in the Antiquarium at Munich. They are of the same type as the recently published ostraka from Elephantine.

Alasiotas. — In *Mennon*, III, 1909, pp. 90–92, G. HÜSING discusses the bilingual text discovered by Ohnefalsch-Richter at Frangissa near Tamassus, in Cyprus, in which the Greek name *Alasiotas* is transcribed into Phoenician as *Alahiotas*. He explains this as due to a dialectic peculiarity of the Phoenician spoken in Cyprus, by which the letter *h* came to stand for the sound *sh*. The change is similar to that by which the Babylonian suffixes beginning with *sh* are represented in Hebrew and Phoenician by *h*. Alasiotas is certainly the Alashia of the Tell-el-Amarna letters. He seeks further to show that *Yatnan*, the later Assyrian name for Cyprus, is a corruption of Alashia.

The God "Lord of the House." — In *Z. Assyr.* XXIII, 1909, pp. 184–186, T. NÖLDEKE discusses the Nabatean inscriptions published by Torrey in *J.A.O.S.* XXIX, pp. 197 ff., in which, along with the goddess Al-Uzzā, a deity called the "Lord of the House" is mentioned. He refers to Sūra 106 of the Qurān, in which Muhammad speaks of the god of the Ka'ba at Mecca as "Lord of this house." It is possible, accordingly, that the deity worshipped at Petra was the Meccan divinity, Hubal.

The Gezer Inscription. — In *Pal. Ex. Fund*, XLI, 1909, pp. 189–193, G. B. GRAY adds some notes to his original publication of the Gezer inscription (*ibid.* XLI, pp. 26–34) in reply to Father Vincent's discussion of it in *R. Bibl.* 1909, pp. 213–269. *Ibid.* pp. 194–195, M. LIDZBARSKI also refutes Father Vincent's reading of the much discussed character as *nun* and insists that it is *vav*. A further discussion of this inscription is contributed by K. MARTI, *Z. Alttest. Wiss.* XXIX, 1909, pp. 222–229 (pl.).

The Old Hebrew Alphabet and the Gezer Tablet. — In *Pal. Ex. Fund*, XLI, 1909, pp. 284–309, S. A. COON investigates very fully the much discussed problem as to the date of the Gezer tablet and its place in Hebrew epigraphy, maintaining his previously expressed view that, from the paleographical evidence as well as on archaeological grounds, it should be dated "somewhere about the exile."

The Semitic Alphabet. — In *Z. Morgenl. Ges.* LXIII, 1909, pp. 189–198, F. PRAETORIUS discusses the relation of the Canaanite and the South Semitic forms of the alphabet. We do not know the date of the South Arabian inscriptions, but they are certainly not later than 700 b.c., which is 150 years after the Mesha inscription. Both forms of writing show a high degree of development when we first meet them, so that these scripts must have been in use for a longer time, both in Canaan and in Arabia, than we have literary evidence of their existence. It is impossible to derive the South Semitic alphabet from that of the Mesha inscription, and equally impossible to derive the alphabet of Mesha from the South Arabian. Both must be regarded as descendants of a common original. This is to be sought in a primitive form of the Cypriote syllabary. The varied forms of *s*, for instance, in South Arabian and in Canaanite, can be explained most readily as derived from the Cypriote syllables *si* and *sa*. Similarly, the Canaanite *m* is derived from Cypriote *me* and South Semitic *m* from Cypriote *mi*.

The Cult of Baal and Astarte in England. — In *Pal. Ex. Fund*, XLI,

1909, pp. 280-284, S. A. COOK restates the evidence for the Baal and Astarte worship in England and presents the problems connected therewith.

The Date of Deuteronomy.—In *Exp. Times*, XXI, 1909, pp. 45-46, A. H. SAYCE reviews a paper recently read before the French Academy by Professor Naville, entitled "Une Interprétation égyptienne d'un Texte biblique : la Découverte de la Loi sous le roi Josias." The paper gives the results of an exhaustive examination of the Egyptian evidence for the belief that the Jewish Book of the Law, usually identified with Deuteronomy, discovered in the Temple at Jerusalem during the reign of Josiah, was placed in the walls of that temple when it was built by Solomon. It is further explained that the book was intended to be so placed in the foundations of the temple, and was really "The Books of the Law in a single Book," written for that purpose. Professor Sayce also claims that Proverbs 25:1 gives support to the conclusions of the paper.

Notes on New Discoveries.—In *Pal. Ex. Fund*, XLI, 1909, pp. 266-275, C. R. CONDER publishes notes on certain points in Bible history on which light has been thrown by the recent explorations in Western Asia.

A Phoenician Drachm with the Name of Jehovah.—In *Num. Chron.* 1909, pp. 121-131 (3 ill.), A. W. HANDS describes a much discussed, unique Phoenician drachm in the British Museum, which has on the obverse a bearded, helmeted head, and on the reverse a bearded divinity holding an eagle and seated in a car with a winged wheel. On his right is a human head, above which are the Phoenician forms of the Hebrew letters *yod*, *he*, *vav*. The coin was apparently struck at Sidon or Gaza between 405 and 380 B.C., and marks an attempt to identify the chief Hebrew deity with the Greek Zeus.

Alexandrine Coinage of Phoenicia.—In *Nomisma*, IV, 1909, pp. 1-15, G. F. HILL establishes the character and chronological sequence of the "Alexanders" from the mints of Arados (with its subsidiary mints, Karne and Marathos), Sidon, Ake-Ptolemais, and Tyre.

Greek Inscriptions in Syria.—In Parts II and III, Section B, Division III, of the *Publications of the Princeton University Archaeological Expedition to Syria in 1904-1905* (76 pp.; map; 48 figs. Leyden, 1909, E. J. Brill), W. K. PRENTICE publishes 164 Greek inscriptions from Northern Syria. Most of them are short and of a semi-religious character. In *Méth. Fac. Or.* III, 1909, pp. 713-752, L. JALABERT discusses some of the readings and restorations in Part I, as well as in Part III of the *Publications of an American Archaeological Expedition to Syria in 1899-1900*.

Ancient Architecture in Syria.—In Parts II and III, Section B, Division II, of the *Publications of the Princeton University Archaeological Expedition to Syria in 1904-1905* (101 pp.; 3 maps; 11 pls.; 127 figs. Leyden, 1909, E. J. Brill), H. C. BUTLER describes the architectural remains at thirty different sites in Northern Syria. Part II deals with new material, while Part III is largely an amplification of de Vogüé's work in the same regions. Important churches, houses, tombs, and other buildings are discussed in detail. The more important sites visited were Il-Anderin, Kerrātin, Ma'eratā, and Serdjilla.

ASIA MINOR

Notes on Antiquities in Asia Minor.—In *Exp. Times*, XXI, 1909, pp. 64–66, Sir W. M. RAMSAY contributes two notes on antiquities in Asia Minor. In the first he makes certain corrections, in the light of the critical text of the Hieronymian Martyrology, published by Monsignor Duchesne, in the list of the Syriac Martyrology relating to Gaianus, martyr at Ancyra in Galatia; the entry probably refers to a martyrdom on a large scale on the day of a festival celebrated either August 31 or September 4, under Domitian, Trajan, or Hadrian at Ancyra. In the second note, on the "Armed Priestesses in the Hittite Religion," he cites a sculptured figure on one of the door-posts of the east gate of Boghaz Keui, which is likened to "an Amazon armed," as confirming his interpretation of the similar figures in the famous rock-sanctuary near Boghaz Keui, as armed priestesses.

Three Small Bronzes from Asia Minor.—Three small bronze figures are published by H. S. COWPER in *J.H.S.* XXIX, 1909, pp. 192–197 (4 figs.). The first, about 4 inches high, from Samos, apparently represents the earliest efforts of bronze casting in that cradle of the art, and may be contemporary with Rhoeucus, Theodorus, and Telescles, who are said to have invented it in the sixth century B.C. with the help of a visit to Egypt. In type the bronze stands between the plank-like figure of the Nicandra statue at Athens and the post-like Samian statue of Hera, in the Louvre. Three archaic bronzes which belong in the same group with this one have been found at Sesso and Vulci, Italy, and at Melos. The hair of the Samian figure suggests Egyptian influence. It has no lock falling in front of the shoulders. A bronze blade about 15 inches long, belonging to a short thrusting sword, is said to have been found with it. A bronze figure of Artemis of the huntress type with knotted hair, short garment, boots and a bow, comes from Ephesus. It is nearly 6 inches high. Several figures in Reinach's *Répertoire* may be compared. A grotesque little figure from Mylasa in Caria, less than 3 inches high, represents a trumpeter blowing his trumpet with all his might. The head, besides being caricatured in the details, is immensely large in proportion to the body, and the body is much too large for the legs.

The Discoveries at Boghaz Keui.—In *Bibl. World*, XXXIII, 1909, pp. 367–381, A. H. SAYCE discusses the results of the discoveries made by Winckler and others in 1906 and 1907 at Boghaz Keui in Cappadocia, which, he maintains, have confirmed his own theory propounded some thirty years ago with regard to the power of the Hittite empire in the latter part of the second millennium B.C. He gives a summary of this new chapter which has been added to Oriental history, and a statement of our present knowledge of the Hittites, their power and influence, as well as their language. He also states that the cuneiform tablets recently discovered at Boghaz Keui confirm him in his belief that he holds the key to the decipherment of the Hittite hieroglyphic inscriptions. A popular article on Boghaz Keui (Keouy) is contributed by ISABEL F. DODD to the *National Geographic Magazine*, XXI, 1910, pp. 111–124 (11 figs.).

Architectural Fragments from Ephesus.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 172–178 (5 figs.), W. AMELUNG identifies four small architectural fragments of marble, found in the market-place at Ephesus and published

by Benndorf (*Ibid.* V, p. 180, Fig. 51), as the small building above the head of statues of the Ephesian Artemis. A fragment in the Villa Albani and a statuette of the goddess in the Capitoline Museum are the evidence for the identification. The building had four façades, but its purpose is not clear.

A Relief from Ephesus. — In *Jh. Oest. Arch.* I. XII, 1909, pp. 178–182 (5 figs.), W. AMELUNG compares the small female figure in relief from the monument of Marcus Aurelius at Ephesus with the Athena in the Louvre believed by Reisch and Sauer to be a copy of the cult statue of the Hephaestum at Athens, and with an Artemis in Liverpool. He also points out the resemblance of the colossal head of Athena in the British Museum. All of these works go back to originals of the latter part of the fifth century.

The Temple of Artemis at Ephesus. — A. E. HENDERSON's article on the temple of Artemis at Ephesus published in the *Journal of the Royal Institute of British Architects*, December 5, 1908, is reprinted in part in *Rec. Past.*, VIII, 1909, pp. 195–206 (6 figs.). The greater part of the paper is devoted to the temple of the time of Croesus.

The So-called Basilica at Pergamon. — The theory of Michaelis that the word βασιλική was used by the Greeks to designate closed buildings and also open stoas is combated by G. LEROUX, *B.C.H.* XXXIII, 1909, pp. 238–244. There is no evidence for the existence of a "basilica" at Pergamon except the tiles with the inscription βασιλική (κεραμίς). This, however, means tile from the royal factory. The mention of a στοά βασιλική at Thera in an inscription of the second century A.D. is simply a translation of the Roman term. The foundations uncovered east of the Theseum at Athens and at first thought to belong to a long stoa, the Stoa Basileios, turned out to be those of a small building, possibly a temple.

The Mercenaries and Military Colonies of Pergamon. — In *R. Arch.* XIII, 1909, pp. 363–377, A. J. REINACH continues (see *A.J.A.* XIII, 1909, pp. 200 and 489) his study of the mercenaries and military colonies of Pergamon, treating in this number of the Aetolians and Achaeans and the Cretans. *Ibid.* XIV, 1909, pp. 55–70 (fig.), he treats of the Trallians from Thrace.

An Ionic Law Earlier than Solon. — Under the title 'Nordionische Steine,' U. V. WILAMOWITZ-MOELLENDORF has published in *Abh. Berl. Akad.* 1909, a series of interesting inscriptions discovered by Paul Jacobsthal at Chios and Erythrae. The most important one, though sadly mutilated, was found at Tholopotami, near the city of Chios. The characters, very archaic and engraved *boustrophedon*, are not later than 600 B.C. There was at that time, we know, a popular assembly at Chios in which the tribes (the number of which is unknown) were represented, as in the constitution of Cleisthenes at Athens, and this assembly dispensed justice. The assembly met once a month to consider public affairs, i.e. take part in administration. The tendencies are the same as those seen later at Athens. Evidently the foundations of Greek social organization, as of poetry and philosophy, were laid in Ionia. (Summarized by S. R., *R. Arch.* XIV, 1909, pp. 279–280.)

Attis-cult in Cyzicus. — The numismatic witness to the prevalence and character of the worship of Attis in Cyzicus is set forth by H. VON FRITZE in *Nomisma*, IV, 1909, pp. 33–42 (pl.).

The Site of Troy. — In *Der Schauplatz der Ilias und Odyssee*, Erstes Heft, *Die Lage der Stadt Troja* (Berlin-Grunewald, 1909, privately printed).

61 pp.; map), A. GRUHN argues that the Troy of Homer cannot be identified with the ruins at Hissarlik, but must rather be sought at Dudén.

Antiquities at Brusa.—A catalogue of the Greek, Roman, and Byzantine antiquities in the museum at Brusa is published by G. MENDEL, *B.C.H.* XXXIII, 1909, pp. 245-435 (3 pls.; 87 figs.).

GREECE SCULPTURE

Archaic Marbles in the Acropolis Museum.—In his *Archaische Marmor-Skulpturen im Akropolis-Museum zu Athen* (Vienna, 1909, A. Holder. 87 pp.; 77 figs.) H. SCHRADER presents the more important results of his study of the archaic marble fragments in the Acropolis Museum at Athens. Many new pieces have been added to familiar figures, sometimes with surprising results. The Gorgon's head (No. 701) belonged to a running, winged figure which served as the middle acroterion of the old temple of Athena. The lower part of No. 682, one of the standing female figures, has been added, almost completing the statue except for the arms. The lower part of No. 669 has also been restored to its original place. The lower left leg of the nude youth (No. 696) has been added to the torso, materially changing the appearance of the figure. The more important additions to the figures of animals are the muzzle and right fore-paw of the dog (No. 143); the left fore-leg of the horse (No. 700); and both fore-legs of another horse (No. 697).

The Asiatic, or Winged, Artemis.—The question of the origin and home of the Asiatic, or winged form of the *τόρνυα θηρῶν* has to be discussed anew since the discovery at the shrine of Artemis Orthia, at Sparta, of a vast number of votive offerings in ivory, bone, lead, and terra-cotta, in which the goddess is represented as mistress of the animal and vegetable worlds, and usually, though not always, with wings. These go back to the very beginning of the Dorian epoch here, appearing along with geometric pottery toward the end of the ninth century. This evidence, together with the distribution and dates of the comparatively few examples of the type found elsewhere, suggests that Orthia, the "upright," is a local form of the pre-Hellenic and, originally, aniconic nature-goddess of Crete and Aegean lands, which received influences from the region of Asiatic winged divinities in the unsettled period following the break-up of Cretan supremacy, when an Achaean-Dorian route of communication was established across the southern Aegean to Thera, Rhodes, Cyprus, and the interior of Asia Minor, but that it never had anything to do with Ionian Asia Minor. The occasional appearance of a winged male deity in the same place shows a survival of the old conception of a divine pair in which the female idea predominated. The winged type continued through the sixth century, but finally died out as Orthia, like so many other local goddesses with very primitive cults, and became more fully identified with one form of Artemis. In the time of Pausanias (V, 19, 5, chest of Cypselus) it was no longer intelligible. (M. S. THOMPSON, *J.H.S.* XXIX, 1909, pp. 286-307; 13 figs.)

The Sculptures of the Treasury of the Cnidians.—The assembly of the gods and the gigantomachy on the Treasury of the Cnidians at Delphi are discussed by G. KARO in *Ath. Mitt.* XXXIV, 1909, pp. 167-178 (pl.;

2 figs.). The two slabs containing the assembly of the gods were not contiguous. Between them is to be assumed, perhaps, one of the battles before Troy (Achilles and Memnon?). The gods are identified as follows, beginning at the left end: 1. Ares; 2. Leto; 3. Artemis; 4. Apollo; 5. Dionysus; 6. (Hermes); (Battle scene); 7, 8. (Zeus, Hera or Hera, Zeus); 9. Athena; 10, 11. Demeter and Kore; 12, 13, 14. (Perhaps Aphrodite, Poseidon, Hephaestus, on missing corner slab). No. 5 is Dionysus, because, on the supports of his throne, a maenad pursued by Silenus is represented. In his right hand he held a bronze vine, in his left a thyrsus. No. 4, Apollo, held a bronze bow and arrow in his left hand. In the gigantomachy, Karo agrees with Lechat in making "Hephaestus" Hermes and in restoring the name Cybele to the figure in the chariot drawn by lions. Romios's identification of the god at the left end as Hephaestus is accepted. He is heating pieces of iron in an oven (traces of which remain) with the help of bellows. The gigantomachy seems to have been derived from a painting.

The Acanthus Column at Delphi.—In *J. Int. Arch. Num. X*, 1907 (published 1909), pp. 295–310 (pl.; 7 figs.), A. D. KERAMOPOULLOS argues that the column at Delphi with leaves about it and three female figures at the top, called by Homolle the "acanthus column," really represents a silphium stalk. It was erected about 400 b.c., by the inhabitants of Ampelus in Cyrenaica (Schol. Arist. *Plut.* 925). The three figures are nymphs, Hesperides, not Caryatids. Two stones of the base are still in position near the site of the tripod of Gelon.

The Athena of the Marsyas Group.—In *Jh. Oest. Arch. I. XII*, 1909, pp. 154–165 (4 pls.; 7 figs.), L. POLLAK publishes a statue of Athena, 1.73 m. high, found in Rome about twenty-five years ago and now in Frankfort a. M. (Fig. 1). The body is of Pentelic, and the head of Parian marble. The face is perfectly preserved, although both arms and the left foot are broken off. One of the hands still exists, grasping the handle of a spear. The goddess wears a Doric chiton without the aegis, and upon her head a Corinthian helmet. Pollak identifies the statue as the Athena of the group of Athena and Marsyas by Myron.

A Hermes of Polyclitus.—A Polyclitan head in the Boston Museum of Fine Arts, catalogued there as a head of a youth and generally regarded as of the Doryphorus type, belongs in a separate small group with the Boboli Hermes at Florence, a head in the Hermitage Museum, and one in the Museo Torlonia, all marble, and a bronze statuette from Annécy, now at Paris. The various attributes given to these copies—*petasos*, head-wings, infant Dionysus, and *kerykeion*—are, all but the last, false additions of the copyists, but they serve to identify the original as a Hermes. The statuette gives the correct attitude, and the Boston head, which is much the best of the marble copies, gives us some idea of the extreme delicacy of modelling to which the beauty of Polyclitus's work in bronze was attributed by the ancients. In the conception as a whole, which is that of a physically beautiful youth, we can also see why Quintilian denied this artist the highest conception of divinity: *nam ut humanae formae decorem addiderit supra verum, ita non explexisse deorum auctoritatem videtur*. (J. SIEVEKING, *Jb. Arch. I. XXIV*, 1909; pp. 1–7; 2 pls.; 7 figs.)

The Diadumenus and the Doryphorus of Polyclitus.—In *Jh. Oest*



FIGURE 1.—ATHENA (BY MYRON?) AT FRANKFORT.

Arch. I. XII, 1909, pp. 100–117 (6 figs.), F. HAUSER, replying to Loewy, supports his original argument that the Diadumenus of Polyclitus really represents Apollo, producing as further evidence a coin of Delphi and a bronze statuette also found at Delphi. He argues further, that the Doryphorus does not represent an athlete, but the hero Achilles. The figure *nudus talo incessens* (Pliny, *N.H.* XXXIV, 55), he explains as a pancratist standing on one foot, with the other raised, in the attitude of a statuette found at Autun and now in the Louvre (REINACH, *Répertoire*, II, p. 543, No. 4).

The Bronze Head of a Victor at Olympia. — In *Sitzb. Berl. Akad.* 1909, pp. 694–706 (pl.; 2 figs.), R. KEKULE V. STRADONITZ discusses the bronze portrait head at Olympia, and Greek portrait sculpture in general. He regards the head on grounds of style as a work of the fifth century B.C. The difference between the "ideal" and the "iconic" statues at Olympia was due, not to any rule that only those who had been victorious three times might erect portrait statues (Plin. *N.H.* XXXIV, 16), or the like, but more probably to the fact that many statues of victors were erected long after the victories, even after the death of the persons represented, and such statues were necessarily "ideal." Pliny and others explained the difference in their own more or less fanciful way.

The Artemis Soteira of Cephisodotus. — In *Jh. Oest. Arch. I.* XII, 1909, pp. 185–197 (2 pls.; 5 figs.), V. MACCHIORO publishes a small marble head at Pavia, and argues that it is a copy of the head of the Artemis Soteira of Cephisodotus. He also traces the so-called Sardanapalus at Naples to Cephisodotus.

A Praxitelean Group. — A statue of the youthful Dionysus, of Pentelic marble, which was found at Rome in 1886, on the site of the barracks of the Equites Singulares, and is now at Lugano, corresponds so exactly in dimensions and attitude to the Praxitelean young satyr pouring wine, as to suggest that they belong together. When they are so placed, with the look of both directed toward the cup held between them, the satyr as well as the god is seen to gain greatly in significance. Thus, we probably have what has heretofore been lacking, an example of a group by Praxiteles, and in particular the group with a boy-satyr offering a cup to Dionysus, which Pausanias mentions (I, 20, 1) as among the monuments on the Street of Tripods at Athens. These figures belong to the early period, when Praxiteles was under Peloponnesian influence. No replica of the Dionysus is known, but echoes of its attitude and of the drapery, which is especially fine and bears comparison with that of the Hermes, can be traced in various statues, reliefs, and coins of the Hellenistic and Roman periods. (H. G. EVELYN-WHITE, *J.H.S.* XXIX, 1909, pp. 251–263; 4 figs.)

A Praxitelean Eros. — A statue of Eros, lacking head and hands, which was found on the site of Nicopolis ad Istrum in 1900, is considered by B. FILOW, chiefly on the evidence of coins, to be an Antonine copy of the Eros of Parium by Praxiteles. The original appears to have been an early work, not far in date from the Eros of Thespiae, and still exhibiting Polyclitan influence. (*Jb. Arch. I.* XXIV, 1909, pp. 60–73; pl.; 3 figs.)

A Praxitelean Head found in Chios. — A technical study by J. MARSHALL, of the Chian head of a youthful goddess (*Ant. Denk.* II, Pl. 59) which is now in the Museum of Fine Arts, Boston, is published (in English) in *Jb. Arch. I.* XXIV, 1909, pp. 73–98 (13 figs.). The geometrical scheme

and the great subtlety of modelling to which the head owes its unique charm are explained and compared in detail with the heads by Praxiteles that are known in copies and with the Hermes of Olympia; and the conclusion is reached that the Chian head answers so exactly to the characteristics of the master, as distinguished from his contemporaries, followers, and imitators, as to create a presumption that this is a work of his own hand. Matters incidentally discussed are: the significance and effect of the geometric structure in sculpture and some of its peculiar features, such as the unnatural breadth of the nose; the gradual decay of technical knowledge and artistic conception in the succeeding centuries; the real centre (Athens) of the art known as Alexandrian; and the reasons for variation in Roman copies of great works, made from casts. In a note on ὑγρότης, τὸ ὑγρόν, as applied to the eye, the ancient passages which discuss the quality are quoted, and the meaning is shown to be an effect of relaxation of the muscles, which is much more often a good than a bad quality, and which covers a wider range of ideas than any single English word can express.

Timotheus and Bryaxis.—In *Ausonia*, III, 1908, pp. 91–135 (3 pls.; 23 figs.), W. AMELUNG undertakes to determine the characteristics of the style of Timotheus and of Bryaxis. Starting with fragments from Epidaurus which may with some probability be attributed to Timotheus, he argues that the torso of a Leda in Boston, a statuette of Hygieia from Epidaurus, an Aphrodite at Mantua, and the first part of the Amazon frieze from the Mausoleum should be assigned to him. These will serve as a means of connecting with him other statues. The style of Bryaxis is decorative, and at the same time shows a largeness of conception. The Zeus of Otricoli, a Serapis at Alexandria, a heroic head in the Capitoline Museum, a head in the Villa Albani, a Zeus or Poseidon in Madrid, a Poseidon in the Lateran, a statuette of Heracles in the Villa Albani, and the fourth part of the Amazon frieze from the Mausoleum are to be assigned to him. His influence may be detected in Attic grave reliefs and in the Demeter of Cnidus.

The Maiden of Antium.—In *Havaθήvaa*, X, 1909, pp. 58–59, A. S. ARVANITOPOULOS suggests that the "Maiden of Antium" (see *A.J.A.* VIII, p. 307; XI, pp. 356 and 460; XII, p. 224) is a copy of the statue of Praxilla by Lysippus.

Euphranor.—Starting with the literary traditions of Euphranor, J. SIX discusses the relations of this artist, who was both painter and sculptor, to Parrhasius and Zeuxis on the one hand, and to Polyclitus and Lysippus on the other, and seeks to get an idea of his work from that of the artists who must have influenced him and been influenced by him. For the human figure he seems to have had a definite canon of proportions of height, but to have made the head and arms too heavy for the somewhat slender body. Among the works the originals of which may be assigned to him are: the Eleusinian Eubuleus head, the so-called heads of Virgil, the Alexander Rondanini at Munich, the Paris of the Vatican, and the Poseidon of the Lateran, as well as an Achilles with Chiron on a wall-painting from Herculaneum. These all show the characteristic heavy head of hair, large, square face, and, where preserved, rather thick arms. (*Jb. Arch. I.* XXIV, 1909, pp. 7–27; 10 figs.)

A Greek Portrait Head.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 198–206 (pl.; 2 figs.), A. HEKLER publishes a male portrait head from Cataio near Padua, now in Vienna. It is of Pentelic marble and in style resembles the

head of the Demosthenes by Polyeuctus. It is a fine example of Greek portraiture, but it cannot as yet be identified. A late copy of the same original is in the Museo delle Terme at Rome.

Greek Grave Monuments in Munich.—In *Mün. Jb. Bild. K.* 1909, pp. 1-21 (pl.; 9 figs.), P. WOLTERS discusses the Greek grave reliefs in the Glyptothek at Munich. Only one of them is a recent acquisition, a stele with a *loutrophoros* carved upon it, received in 1908.

Greek Grave Reliefs from Southern Russia.—In *Griechische Grabreliefs aus Südrussland* (Berlin, 1909, G. Reimer. 148 pp.; 56 pls.; 16 figs. Folio. M. 50), GANGOLF VON KIESERITZKY and CARL WATZINGER publish a *corpus* of the Greek grave reliefs from southern Russia. They have arranged the stelae according to subject into various classes, such as the slabs without figures; those with a seated woman; a standing woman; a standing man; a horseman; a funeral banquet; half figures of men; and half figures of women. Each relief is described and its bibliography given. The greater part of the material for the work was collected by Kieseritzky, who died in 1904; the arrangement for publication was the work of Watzinger.

Grave Reliefs with Dolls.—In *'Εφ. Ἀρχ.* 1909, cols. 121-132 (pl.; 4 figs.), P. KASTRIOTES discusses the meaning of the dolls that appear on seven of the Attic grave reliefs, arguing that they do not symbolize the soul, as is generally believed, but are merely playthings of the deceased. Most of them have detached hands and feet, and in one or two cases the doll is handed to the deceased girl by a slave! Two of the seven reliefs are here published for the first time.

A Bronze Statuette of a Gaul.—In the sixty-ninth "Winckelmannsprogramm" of the Berlin Archaeological Society, R. KEKULE V. STRADONITZ publishes and discusses a bronze statuette of a fighting Gaul, recently acquired by the Berlin Museum. The Gaul is characterized by his *torques* and sword belt. In his left hand is a small, plum-shaped object, no doubt a sling-shot. The sling was doubtless in the right hand. The left arm once bore a shield. This statuette, said to have been found at Rome, is derived from a group which dated from the second third of the third century B.C., earlier, that is, than the Pergamene statues. Many representations of Gauls are discussed. The attack upon Delphi in 279 B.C. was the probable occasion of many such representations. The bronze statuette from Telamon is some fifty years later. (*Bronzestatuette eines Kämpfenden Galliers in den Königlichen Museen. Neunundsechzigstes Programm zum Winckelmannsfeste der Archaeologischen Gesellschaft zu Berlin.* Von Reinhard Kekule von Stradonitz. 22 pp.; 3 pls.; fig. 4to. Berlin, 1909, G. Reimer.)

Asclepius and his Family.—In *'Εφ. Ἀρχ.* 1909, cols. 133-178 (2 pls.; 15 figs.), I. N. Svoronos, publishing a charming marble statuette representing a little boy and a fox-goose (described in Friederichs-Wolters, *Gipsabgüsse*, No. 1590), which has recently been placed in the National Museum at Athens, argues that the numerous examples of this class, commonly regarded as *genre* sculpture, have in reality a mythological and religious significance. The goose was a sacred bird of Asclepius, and all these goose-and-child groups whose original location can be traced come from sanctuaries of Asclepius. The author maintains that the various types of boy-and-goose generally represent *Iavírkos*, the youngest son of

Asclepius (mentioned by Schol. ad. Arist. *Plut.* 701), whose name offers the best solution of the text corruption in Pliny's description of Boethus's group of the Boy Strangling a Goose, *Nat. Hist.* XXXIV, 84, *infans eximium anserem strangulat*. (The best MS. has *sex annis*, which may well be a corruption of IANNIS9 [>VI ANNIS].) Herondas, *Mim.* IV, 26-34, describes a similar group, which, however, must antedate that of Boethus. The γέροντα there referred to was probably a statue of Hippocrates. Other so-called *genre* figures represent Asclepius as an infant, others one of his daughters with a goose. The statuette here published, found in Phocis near one of the chief sources of the Boeotian Cephissus, probably stood upon an inscribed base which has disappeared. (*I. G. Sept.* 232; Ξενοφάνης Ξενόδωρος Ἀνδρίσκος Καφισσαῖος.) If so, instead of Ianiscus we here have a statue of a boy named Andruscus set up as a votive offering to the Cephissus, whose springs are sources of healing and accordingly closely associated with Asclepius, or the name may be a diminutive of Ἀνδρέας, son of the Thessalian river Peneus, who settled on the banks of the Cephissus and became identified with it, the statue representing him in his boyhood. The strangling of the goose, which is a symbol of the fever-breeding pools and marshes, typifies the healing of fevers by Asclepius and his family. The Spinario of the Capitol is probably Ποδαλίριος, another son of Asclepius.

Dionysus learning to Walk.—In *Jh. Oest. Arch.* I. XII, 1909, pp. 215-223 (pl.; 3 figs.), H. SITTE publishes part of a marble sarcophagus relief in a villa near Vienna. At the left stands a nude boy, and from his left shoulder hangs a garland of leaves and fruits which runs along the lower part of the relief. Above this two seated satyrs bend forward towards an infant who stands on a pedestal, resting his right hand on the back of one of the satyrs. At the left is a nymph looking on. The scene is interpreted as the infant Dionysus learning to walk. The same subject is found on two late sarcophagi, one in Munich and the other in the Capitoline Museum in Rome. The original was probably the work of an Alexandrian sculptor.

Representations of the Satyr Drama.—In *Abh. Sächs. Ges.* XXVII (No. 22), 1909, pp. 761-779 (3 pls.; 4 figs.), T. SCHREIBER discusses six reliefs upon which are figures of youthful satyrs, one dancing, and above under a tree a seated muse holding a Silenus mask. In front of her is a large box beside which stands a youthful attendant holding the double flute. Two of the reliefs have but part of the scene. The writer argues that they represent the satyr drama.

Reproductions of Ancient Sculptures at Stettin.—In *Museumskunde*, V, 1909, pp. 129-135 (5 figs.), J. SIEVEKING calls attention to the importance of reproductions of ancient sculptures and urges that they should be made to appear as nearly as possible like the original works. Thus statues of which the originals were bronze, but which are now known only from marble copies, should be restored in bronze. The museum at Stettin has several familiar figures so restored.

The Frankish Inscription on the Mausoleum Frieze.—Block 1010 of the Amazon frieze from the Mausoleum of Halicarnassus, one of twelve stones brought to England in 1846 from the castle of St. Peter, of the Knights Hospitallers at Budrum, bears a badly defaced inscription cut in three lines across the shield of one of the combatants. The letters are now

made out as *F(rater) Christofle | Quatnel Julii(?) | 1510.* They seem to refer to Christoph Waldener, of the Tongue, Germany, who was Castellan of Rhodes in 1522. He may have been captain or visitor at Budrum in 1510. The last part of line 2 is uncertain and may be part of some extraordinary spelling of this or some other name. (F. W. HASLUCK, *J.H.S.* XXIX, 1909, pp. 366-367.)

VASES AND PAINTING

An Amphora of the Dipylon Style.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 18-21 (2 figs.), J. DE MOT describes an amphora of the Dipylon style, 0.87 m. high, found near Patissia and now in Brussels.

Aristophanes and Vase Paintings.—In *Jb. Oest. Arch. I. XII*, 1909, pp. 80-100 (pl.; 8 figs.), F. HAUSER shows that certain more or less obscure passages in Aristophanes are illustrated by vase paintings. These are ξανούσαν, *Eccl.* 93; the use of the lamp, *Eccl.* 13; and ὁ τ' Ἀδωναρμὸς οὐρὸς οὐρὶ τῷν τεγών, *Lys.* 389. In connection with the scholium on *Eccl.* 1, he calls attention to two representations of the potter's wheel not hitherto noticed. The poet's allusions to vase painting were perhaps called forth by the fact that there was a contemporary vase painter of the same name.

The Omphalos.—On an Attic black-figured hydria with white field, which was found in Melos, two satyrs stand gesticulating on either side of an egg-shaped mound decorated with branches, while a bird of prey is perched on the mound and a doe is shown in white silhouette against it. The details of the picture are found separately on other vases, and the scene as a whole illustrates Miss J. HARRISON'S observations on the omphalos as at the same time tomb and dwelling of the spirit. (E. ROESE, *Arch. Anz.* 1909, cols. 30-33; fig.)

Danae.—In *Jb. Oest. Arch. I. XII*, 1909, pp. 165-171 (8 figs.), R. ENGELMANN publishes an amphora in the museum at Arezzo on which a young woman stands before an open chest talking with an older woman, while behind the lid stands a youth. He argues that this represents Danae. Two other unpublished illustrations of the Danae story, one on a crater in Syracuse and the other on a mosaic from Theneae in Northern Africa, are reproduced.

Heracles and Dionysus in a Gigantomachy.—In *Ausonia*, III, 1908, pp. 57-70 (9 figs.), M. JATTA publishes a South Italian amphora *a colonette* from Ceglie del Campo, now in the museum at Bari. It dates from the fourth century B.C. and is decorated on one side with a gigantomachy in which Dionysus and Heracles play the most important parts. Jatta finds in this scene a fifth century motive modified by Hellenistic ideas. On the other side of the vase Dionysus appears seated and talking with a youthful satyr while a maenad stands on either side.

A Painted Gravestone from Athens.—On a painted Attic stele in Munich, with *loutrophoros* in relief (cf. p. 223), several short cylindrical objects are seen lying on the ground or hanging beside the vase. These are interpreted by P. WOLTERS as rolls of woollen bands of various colors, to be used in decorating a grave, and they are to be compared with certain square objects in the head-piece of some gravestones in relief. (*Jb. Arch. I. XXIV*, 1909, pp. 53-60; pl.; fig.)

A Catalogue of the Painted Stelae from Pagasae. — In *Kardálogos tōn dýr tōn Ἀθανασάκειρ Μονοτίμων Βόλων Αρχαιοτήτων* (Athens, 1909, K. Eleutheroudakis; Volo, K. Papaskenopoullos. Pts. II and III, pp. 223–463), A. S. ARVANITOPULLOS describes the painted stelae from Pagasae in the museum at Volo numbered 42 to 216 inclusive.

INSCRIPTIONS

The Disk from Phaeustus. — In *Ausonia*, III, 1908, pp. 255–302 (5 pls.; 19 figs.), L. PERNIER discusses at length the disk from Phaeustus (*A.J.A.* XIII, pp. 78 and 500), and the significance and grouping of the signs. In *Sitzb. Berl. Akad.* XLI, 1909, pp. 1022–1029, E. MEYER argues in opposition to Pernier that the writing on the disk runs from the outer edge to the centre. He thinks it the work of the Philistines, but believes with Pernier that some of the characters show Cretan influence.

The Inscription from Aegeia. — In *R. Ét. Gr.* XXII, 1909, pp. 241–250, T. REINACH discusses the provisions of the mortgage in the inscription from Aegeia (lines 10–14), and the proper restoration of the number in line 14 (see *A.J.A.* XII, p. 360; XIII, p. 501).

The Laws of Gortyns. — In *Abh. Sächs. Ges.* XXVII, 1909, pp. 390–420 (No. 11), HERMANN LIPSIUS discusses various points in the laws of Gortyns, especially the relations of the different classes of the population and the divisions of the people.

Inscriptions from Delphi. — In *Jh. Oest. Arch.* I. XII, 1909, pp. 151–153, W. CRÖNERT discusses eight of the inscriptions found by Pomtow at Delphi and published in *Berl. Phil. W.* 1909, Nos. 5–12. In *B.C.H.* XXXIII, 1909, pp. 440–442, A. D. KERAMOPOULLOS publishes further notes on an inscribed bronze basin found at Delphi (cf. *ibid.* XXXII, 1908, pp. 445–448), and on a second basin published by Perdrizet, *Fouilles de Delphes*, V, p. 70, Fig. 228 b.

The Base of the Charioteer at Delphi. — In *Ath. Mitt.* XXXIV, 1909, pp. 33–60 (3 figs.), A. D. KERAMOPOULLOS gives a revised reading of the erased inscription on the base of the charioteer at Delphi and proposes the following restoration:

Εὐέλαμενος με Γέλοντο] Γέλας διέθεκε γανάσο[ον
Δεινομένενος κνώς τ]ὸν ἄξενον γένοντο] "Απολλ[ον.

The first line might also be read: Πιθιονίκα Γέλον με] Γέλας κ.τ.λ. The phrase Γέλας διάστων dates the victory in the year 486 B.C. The statue was ready to be set up at the time of Gelo's death (478). It was actually set up by Polyzelus soon after that event and the inscription changed to read as follows:—

Μνῆμα Γέλωνος τῆτος ΙΙ] ολύζαλος μ' ἀνίθηκ[ε,
Δεινομένενος κνώς τ]ὸν ἄξενον γένοντο] "Απολλ[ον.

The delay of eight years is to be explained by the warfare against the Carthaginians. Keramopoulos believes the group to have been the work of Glaucias of Aegina, who made the similar group at Olympia. In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 233–235 (fig.), J. SUNDWALL argues that the reading proposed by Keramopoulos is essentially correct. There is, however, no Ξ between the letters read as Ζ and Α at the begin-

ning. The horizontal strokes are marks of the tool used in erasing the inscription, as the spacing shows. He also finds no trace of \otimes before the ninth letter, *M*. The last five letters are certainly *ANΑΣΣΞ*. He agrees with Pomtow that the inscription began at the left of the second stone of the base, ran across the third, i.e. the existing stone, and over the edge of the fourth. Seventeen letters are lost at the beginning.

The Parthenon Treasure Lists. — Three new fragments of the annual lists of offerings and other valuables kept in the Parthenon are published by A. M. WOODWARD in *J.H.S.* XXIX, 1909, pp. 168–191. They are now in the Epigraphical Museum at Athens. All are of Pentelic marble. Although they throw no new light on the history of the stewardship of the treasures, they supply several lacunae in the published lists and give one or two new items. (1) In the old Attic alphabet, with retrograde sigma, parts of lines 7–12 in *I.G.* I, 171, of the year 421 B.C. It confirms the number of *στάχνες* as 12 and gives their weight as 184 drachmas. (2) The left side of *I.G.* II, 2, 665, with parts of 21 lines, leaving a gap between the two stones. Among the items are: the rare object *ἀναποσχαλιστήρ*, ornament for securing a garment from slipping off the shoulder; some object with a border, possibly the sacred peplos, which weighed 66 drachmas, 3 obols; an "ointment box" in which were kept the dies, mallets, and anvils (*χαρακτῆρες*, *σφίραι*, and *ἀκμόνισκοι*) used for striking gold coins; chips of ivory; studs with ornamented heads and other silvered or gilt decorations from the door of the Hecatompedon, date, 385–375 B.C. Other inscriptions for which this supplies missing items are *I.G.* II, 2, 666; 672; 694; 697. (3) Part of a list in columnar form, two columns, with weights in the space between, which belong to items in the right-hand column, date, 375–369 B.C. It supplies gaps, especially in *I.G.* II, 2, 677 and 678, about the two *θυματήρια* which were stamped with an Alpha and a Beta.

Researches in Athenian and Delian Documents. — In *Klio*, IX, 1909, pp. 304–340, W. S. FERGUSON completed his series of studies in Athenian and Delian inscriptions. He shows (1) that the Athenian Pythais came at irregular intervals down to 94–93 B.C., when it became annual, but that it did not continue after 87–86 B.C. (2) He also discusses the dates at which the ten generals had specific duties assigned them and became civil and military magistrates. (3) He shows, furthermore, that there was at Athens between the time of Sulla and the later aristocratic régime a period of popular influence which must have extended from about 70 B.C. to about 53 B.C. Problems connected with the priests at Delos and the dating of the archon Lysiades are also considered.

Greek Inscriptions from Babylon — In *Klio*, IX, 1909, pp. 352–363, B. HAUSOULLIER discusses three Greek inscriptions from Babylon. The most important dates from 109 B.C. and records the distribution of prizes in the gymnasium at Babylon.

A Forged Inscription from Cappadocia. — The metrical inscription from Cappadocia published by H. Grégoire in *B.C.H.* XXXIII, 1909, p. 77, No. 65, is a careless copy of the inscription on a leaden *δλτήρ* found at Eleusis, *I.G.* I, 422, 4. (E. N. DRAGOUMIS, *B.C.H.* XXXIII, 1909, pp. 437–438; H. GRÉGOIRE, *ibid.* p. 439.)

Διὰ πάντων and ὁ ἐπινίκιος. — The meaning of *διὰ πάντων* and *ὁ ἐπινίκιος* in inscriptions giving lists of victors in musical contests is discussed by

FRIEDRICH MIE in *Ath. Mitt.* XXXIV, 1900, pp. 1-22. The former was a concluding contest in which all who had taken part in the earlier contests were entered. In the Boeotian musical festivals ὁ ἐπινίκιος (sc. νύμος) was also an ἀγών διὰ πάντων, or a contest in which all the *agonistae* took part, as is shown by the fact that the victor in it is often the same as the victor in one of the earlier contests.

Inscriptions from Erythrae and Chios.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 126-150 (3 figs.), A. WILHELM discusses two inscriptions in the collection of G. J. Zolotas of Chios published in *Ἄθηνα*, XX, pp. 113 ff.; and an inscription relating to the selling of fish at Eleusis found at the Piraeus and published in *Παλαιγενεσία*, January 11, 1868, and elsewhere.

The Letter of Articon.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 118-126 (fig.), A. WILHELM discusses the letter written on a sheet of lead, published by Latyshev in the *Bulletin de la Commission Impériale archéologique*, X, p. 10. It was found at Olbia and is now in St. Petersburg. He reads, Ἀρτικῶν: τοῖς ἐν οἴκῳ | χαίρειν ἐγβάλεικ τῆς | οἰκίς θ:μ[ᾶς] Μυλλίων: | παρὰ Ἀτάκους [εἰ]ς τὸ οἴκυμα, | ἦν γὰρ δῶδων, εἰ δὲ μή, | παρὰ Ἀγάθαρκον: εἰς τὰ | παρὰ Κέρδου[ν]ος ἔρισιν | τὸ μέρος κομισασθε. He dates it in the fourth century B.C.

Two Cypriote Inscriptions.—In *Sitzb. Sächs. Ges.* LXI, 1900, i, pp. 3-13 (pl.), R. MEISTER discusses two Cypriote inscriptions first published in *J.H.S.* XII, 1891, p. 192, No. 46 and p. 320. He transliterates and supplements the first: Χαρίνος τῷ Νικά(ν)θεος κάποιος | ημὶ κε[ερὸς] | κὰ ἀσκα-[φος]. The bare field belonged to Charinus, the improvements to the tenant. The second inscription may be transliterated: Τιμοφάνακτος τῷ Τιμάσει (or -η) ημί. The discussion is concerned chiefly with points of dialect and grammar.

A Cypriote Ostrakon.—In *Abh. Sächs. Ges.* XXVII (No. 9), 1909, pp. 302-332 (2 pls.), RICHARD MEISTER publishes and discusses the ostrakon published by Murray, Smith, and Walters in *Excavations in Cyprus* (London, 1900), p. 3, fig. 2. It comes from a sanctuary of Zeus, at Salamis, Cyprus, whose epithet Epikoinios is derived from his granting of oracles. The text, transliterated, is given as follows: *Front. I.* φιλέω ζάλωμα | τοδε καὶ τ' ίλέω (or ίλην) | , ἐχθρὼς δὲ | πυρὶ παφίω. | σώζει ἀμύραφι ρόμφω μικῶ βωτὶ νῆμα γαδύ, ὃ φῆρι | νομίσαται ὃ πέλαφι. | ημὶ ἀρατὸς δογαρῶν, σί ει μαίε[τα]:] γαρά. *II.* τελος | σεω̄. | ἀπανδάω | νήλιτος | ι(μ)χώσις ρούω μικῶ. *III.* Διεῖν ιαξίας | ι(μ)φορὰς τὰ κατάρυματα (numeral). *IV.* θύμα στειν | κάδως (numeral) θύμω. | ι(μ)φορος τοι κάδος (numeral). *Back. V.* κάδως τὸ φέτος | ἀμαρτι ἀματι (numeral). *VI.* τῷ φέτεος τὰ ἀματα (numeral). *VII.* φοίνικας κάδως τὸ φέτος ἀμαρτι ἀματι. | λάχος ι(ν) δεκάται πλότει (numeral). The translation is: I. I love this zeal and am gracious, but my enemies I strike with lightning. I preserve by means of the trenches of the little stream for the cattle the sweet water, in spring the pasturage for the welfare. I am moved by the prayer of the doubting one who asks supplicating. II. Decision of the god: I forbid absolutely the filling up of the little stream. III. For Zeus as worthy offerings the first fruits (numeral). IV. As a sacrifice to the god I offer jars (numeral). As tax the jars (numeral). V. Jars during the year from day to day (numeral). VI. In the course of the year through the days (numeral). VII. Jars of wine during the year from day to day. The receipts on the tenth tablet (numeral). The text is written on both sides of the sherd, and has to do with the

response given by the god to some one who asked about filling in a water course. Grammatical and phonetic remarks are a large part of the monograph.

The Minaeo-Greek Inscription of Delos.—In *R. Sém.* XVII, 1909, pp. 402–406, J. HALÉVY publishes again the inscription given in *C. R. Acad. Insc.* 1908, pp. 546–560, and gives a new translation and commentary. (See *A.J.A.* XIII, pp. 354–355.)

Prosopographical Notes.—In *Klio*, IX, 1909, pp. 365–371, J. SUNDWALL publishes notes on the *prosopographia* of Attica.

Epigraphic Bulletin.—In *R. Et. Gr.* XXII, 1909, pp. 145–195, 306–335, A. J. REINACH compiles a summary of the books and articles concerned with Greek inscriptions published in 1908.

COINS

Early Coinage.—The publication in French of the lectures of I. N. SVORONOS on early money is continued in *R. Belge Num.* 1909, pp. 389–406 (ill.), where the "anchors" of Cyprus, the "fishes" of Olbia, and the "hams" of Nîmes, are discussed. The English translation of the same papers (from the French version) is continued in *A. J. Num.* XLIII, 1908–09, pp. 93–101, 141–148 (ill.), with some added notes by the editor.

Notes on Greek Coins.—In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 243–248 (2 figs.), K. REGLING discusses a late Athenian tetradrachma with the name Aesillas; a copper coin similar to one published by Svoronos (*ibid.* IX, p. 237) inscribed *τετράδραχμον*; and the tetradrachmas of Cleopatra VII.

Athenian Tetradrachmas from Zaroba.—In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 236–240, I. N. SVORONOS describes 228 later Athenian tetradrachmas found at Zaroba, Macedonia, in 1898. There were more than one thousand in the hoard, some of which are now in Vienna, and others in Constantinople.

A New Corinthian Stater.—In *J. Int. Arch. Num.* XI, 1908 (published 1909), p. 214 (2 figs.), I. N. SVORONOS publishes a new Corinthian stater in which the protection for the neck below Athena's helmet has the appearance of scale armor. Two copies are known, one in Athens and one in Budapest.

Autonomous Coinage. of Aenus.—A chronological study of the autonomous coinage of Aenus, in both silver and copper, is given by H. VON FRITZE in *Nomisma*, IV, 1909, pp. 16–32 (2 pls.).

The Medallions of Abukir.—In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 369–371 (7 pls.), I. N. SVORONOS changes his opinion about the gold medallions from Abukir (see *A.J.A.* VIII, p. 468; XI, pp. 78 and 451; XII, p. 214; XIII, p. 192) and now believes them genuine. A translation of the article appears in *Riv. Ital. Num.* XXII, 1909, pp. 515–518, and a summary of it in *Mb. Num. Ges. Wien*, VIII, 1909, p. 56.

Facing Heads on Greek Coins.—In *A. J. Num.* XLIII, pp. 113–131 (4 pls.), Miss AGNES BALDWIN arranges in chronological sequence 363 Greek coins upon which are heads in full face, and makes certain deductions therefrom, especially that the representation of heads on coins in full face was by no means confined to the fourth century, but extended from the

beginnings of Greek coinage down through the first century, when independent Greek issues ceased.

Coinage of Antigonus I and Demetrius Poliorcetes. — A much-needed chronological synopsis of the coinage of Antigonus I and Demetrius Poliorcetes, with plate, is given by CHARLES T. SELTMAN in *Num. Chron.* 1909, pp. 264-273.

Nymphs and Graces on Greek and Roman Coins. — In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 1-213 (12 pls.), F. IMHOOF-BLUMER discusses the ancient coins upon which Nymphs and Graces are represented, recording 527 of the former and 24 of the latter.

Review of Numismatic Literature. — The "Jahresberichte über die numismatische Literatur" for 1905 and 1906, published in *Z. Num.* XXVII, deserves especial mention. The portion (pp. 3-80) on ancient coinage is by K. REGLING.

GENERAL AND MISCELLANEOUS

The Date of the Cretan-Mycenaean Culture. — In his *Zeit und Dauer der Kretisch-Mykenischen Kultur* (Leipzig und Berlin, 1909, Teubner, 107 pp. M. 3), D. FIMMEN examines the evidence for dating the so-called Cretan-Mycenaean civilization, drawing up a synchronistic table as follows: (1) Before 3000 B.C. the first two dynasties of Egypt; the neolithic culture of Knossus and Phaestus, as well as that of Dimini, and Sesklo, of Phocis and Boeotia. (2) 3000-2000 B.C., the third to the eleventh dynasties in Egypt; Early Minoan periods I, II, and III at Knossus; the early culture of the Cyclades; Orichomenus II; and the earliest remains at Tiryns; Troy I and II; the oldest graves of Cyprus. (3) 2000-1700 B.C., the twelfth and thirteenth dynasties of Egypt; Middle Minoan periods I and II; the later culture of the Cyclades; Phylakopi I and II; early remains at Aphidna, Aegina, and Argos. (4) 1700-1550, the Hyksos period, and the beginning of the eighteenth dynasty in Egypt; Middle Minoan III and Late Minoan I; the shaft graves at Mycenae. (5) 1550-1400 B.C., the remainder of the eighteenth dynasty in Egypt; Late Minoan II at Knossus; Phylakopi III; the palaces of Mycenae and Tiryns. (6) 1400-1250 B.C., Amenophis III and IV, and the nineteenth dynasty; Late Minoan III; late Mycenaean styles at Phylakopi, as well as at Tiryns and Mycenae; Troy VI and VII, 1; Ialysus; Enkomii in Cyprus. (7) 1250 and later, the twentieth dynasty in Egypt; geometric decoration; local Mycenaean vases of Cyprus.

The Discoveries in Crete and their Relation to the History of Egypt and Palestine. — In *S. Bibl. Arch.* XXXI, 1909, pp. 221-238 (2 pls.), H. R. HALL continues his discussion of the discoveries in Crete and their relation to the history of Egypt and Palestine (see *A.J.A.* XIII, p. 503). Among other points, he discusses: (1) the theory of the Aegean origin of the spiral motive, giving evidence to show that the Egyptians imported it from the Aegean region about the end of the Old Kingdom; (2) the evidence that the Cretans borrowed from Egypt the art of glazing pottery, but gave the Egyptians in turn the idea of polychrome pottery; (3) the origin and affiliations of the Minoan method of writing; (4) the relation of Cretan civilization to that of Cyprus; (5) the theory that the Philistines were originally Aegeans.

Cretan Palaces and the Aegean Civilization.—In *B.S.A.* XIV (Session 1907-1908), pp. 343-422 (21 figs.), D. MACKENZIE presents the fourth part of his discussion of Cretan palaces. He finds that no part of the Mediterranean region shows the exclusive use of either the round or the rectangular hut from the very beginning. In Sardinia round dwellings only are found, but tombs are rectangular; in Crete only rectangular dwellings have been found, but round tombs are common. The round hut originates among nomads, and nomadic habits cannot persist on the islands and coasts of the Mediterranean. In the Danube valley the round hut is of eastern origin. The Nordic house and the central-hearth house of the Balkan Peninsula are cognate Mediterranean types, but neither is derived from the other. Prehistoric rectangular dwellings in the eastern Mediterranean region are discussed in detail. An important matter is the central position of the hearth. This involves isolation of the room containing the hearth, and when the addition of other rooms causes draughts to blow the smoke about the hearth has to be moved. In Crete and the islands of the Aegean, a continuous fire was not needed, and the portable hearth was introduced very early. This made the avoidance of draughts unnecessary and led eventually to the elaborate arrangement of connecting rooms seen in the great Cretan palaces. Thessaly developed later than Crete. In some *b'ut* and *b'en* houses at Dimini and Sesklo the hearth was moved to avoid draughts. The isolated megaron of the Mycenaean palaces of the Greek mainland is a reversion to the type of the primitive central-hearth hut. The elliptical house at Chamaizy is a sporadic development from the rectangular house. Throughout this article Noack's views are criticised freely.

The Bull-ring in Crete.—In *Ath. Mitt.* XXXIV, 1909, pp. 85-99 (pl.; 13 figs.), A. REICHEL collects and discusses the illustrations in Mycenaean art of acrobats performing feats of strength and skill with bulls. He suggests that these spectacles may have had a religious significance, citing the connection of bulls with the cults of Zeus and Poseidon in later times.

A Bird Cult in Egypt and in Crete.—In *Annals of Archaeology and Anthropology*, II, 1909, pp. 49-51, P. E. NEWBERRY points out the connection of the cults of the Double Axe and of the *Wr*-bird in the Old Kingdom in Egypt and similar cults depicted on the sarcophagus from Hagia Triada in Crete.

The Early History of the Argive Heraeum.—The existence of a beehive tomb at the Heraeum proves that there was a Mycenaean stronghold in the immediate vicinity. This is to be sought on the highest terrace of the Heraeum hill, above that occupied by the old temple. This has not been excavated, though there are remains of house walls in the neighborhood, and the place is strewn with Mycenaean sherds. The fortification walls were probably used later as building material. The fortress was destroyed near the close of the Mycenaean period, and the sanctuary was founded by the conquerors. The stories of Io and of the Danaids, which are closely connected with the Heraeum, perhaps originated in this Mycenaean settlement. (PAUL FRIEDLÄNDER, *Ath. Mitt.* XXXIV, 1909, pp. 69-79.)

The Beehive Tombs at Kakovatos.—The finds in the three beehive tombs described by Dörpfeld (*Ath. Mitt.* XXXIII, 1908, pp. 295 ff.; cf. *A.J.A.* XIII, 1909, p. 79), are published by K. MÜLLER in *Ath. Mitt.* XXXIV, 1909, pp. 269-328 (13 pls.; 17 figs.). Among the gold objects a pendant in the

form of a toad is most noteworthy. Numerous fragments of amber were found. Like that discovered in the shaft graves at Mycenae, it came from the Baltic. The pottery consists chiefly of the remains of large amphoras (Figs. 2 and 3) more or less fragmentary (some twenty-two in all). These vases find closer parallels at Mycenae and elsewhere on the mainland than in Crete. In style they belong to about the beginning of the second Late Minoan period. The contents of the tombs as a whole point to a slightly later date than that of the shaft graves at Mycenae.



FIGURE 2.—VASE FROM KAKOVATOS.

The Pelargikon.—In *Das Pelargikon, Untersuchungen zur ältesten Besetzung der Akropolis von Athen* (Strassburg, 1900, J. H. E. Heitz. 42 pp.; 6 pls.) A. KÖSTER argues that the oldest walls of the Acropolis were built in the second millennium B.C. They ran around the upper part of the rock and had their principal entrance on the north side, a little to the east of the Erechtheum, and another entrance at the northwest corner. There was no entrance on the west side. This was the Pelargikon. Towards the end of the second millennium an enlargement was made to the west and the Nine Gates built. The name Pelargikon was then transferred to this wall. In the time of Pisistratus the highest of these gates was strongly fortified, but the walls were destroyed at the downfall of the tyrants. The writer also discusses the walls of Cimon.

The Homeric Shield with One Handle.—In *Jh. Oest. Arch. I. XII*, 1909, pp. 1-70 (45 figs.), W. HELBIG traces the history of the Homeric round shield with one handle in Mesopotamia, Syria, Egypt, and Greece, including Crete, down through the geometric period into classical times.

Parallels between Greek Art and Greek Poetry.—In *Jb. Kl. Alt. XXIII*, 1909, pp. 681-712, F. WINTER points out resemblances between Greek art and Greek poetry. In Homer various passages may be illustrated by works of Creto-Mycenaean art; while in other passages the poet seems to have had in mind some painted scene. So, too, the lyric poets, Pindar, and the great dramatists reflect the spirit of contemporary art. Compare, for example, with Pindar the sculptures of the Temple of Zeus at Olympia, and with Sophocles the sculptures of the Parthenon.

Delphica.—In *B.C.H. XXXIII*, 1909, pp. 201-237 (3 pls.; 9 figs.; cf. p. 436), G. KARO discusses (1) the Treasuries of Corinth and Acanthus.

Some remains of the foundation of the former exist east of the sacred way, opposite the southeast end of the great supporting wall. Some walls lying to the north of the path which leads past this foundation to an eastern postern belong to the Treasury of Acanthus. The Treasury of Clazomenae is perhaps to be identified with the archaic foundation to the east of the tripods of Gela. (2) The *Ion* of Euripides and the Treasury of the Cnidians. In the first chorus of the *Ion* the words δύνατίδες θεραπεῖαι and διδύμων προσόπων καλλιβλέφαρον φῶς (ll. 185 ff.) refer to the caryatids of the Cnidian or Siphnian Treasury. The group of Heracles slaying the hydra (l. 190) is to be identified with that of Tisagoras (Paus. X, 18, 6). The gigantomachy described in lines 206 ff. is the north frieze of the Cnidian Treasury. (3) The Monument of Aegospotami. The identification of the

rectangular niche on the north side of the sacred way with the dedication of Lysander after Aegospotami is wrong. These statues possibly stood on the south side of the road immediately next to the gate.

The Treasury of the Cnidians at Delphi. — An examination of Homolle's restoration of the Treasury of the Cnidians at Delphi shows that the gable is too broad to be brought into connection with the foundations and the dedicatory inscription on the step. The slabs of the frieze are to be divided into two groups on stylistic grounds. The remains, therefore, belong to three separate buildings: (1) The Treasury of the Cnidians. Its dimensions were approximately 3.50 m. by 7.80 m. The frieze was composed of battle scenes on the ends, the gigantomachy and the assembly of the gods on the sides. There is not room for the caryatids between the antae; they must have stood in front of the latter. (2) The Treasury of the Siphnians (4 m. by 7 m.). On one of the sides was the rape of the Leucippidae, on one of the ends the slaying of Tityus by Apollo and Artemis.



FIGURE 3.—VASE FROM KAKOVATOS.

The figure of a goddess descending from a chariot, explained by Poulsen as Aphrodite putting on her necklace, is Artemis aiming an arrow at the monster whose head is preserved. (3) A building with a tympanum 5.78 m. wide. To this belong the pedimental sculptures, the cornice, and perhaps the sima and acroteria. To it is perhaps also to be assigned the second pair of caryatids, the greater width of the façade allowing them to be placed between antae. (R. HEBERDEY, *Ath. Mitt.* XXXIV, 1909, pp. 145-166; pl.; 2 figs.)

The Offering of Rhodopis at Delphi.—In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 287-294 (3 figs.), G. KARO argues that two stones of the base which supported the spits dedicated by Rhodopis at Delphi (Hdt. II, 134-135) are still preserved; that there was a standing female figure with the spits on end about it. *Ibid.* p. 367, he withdraws this conclusion and believes that these blocks formed part of the base of a bull in a field of grain, perhaps of the bull of the Coreyraeans.

The Monthly Offerings at Olympia.—In *Klio*, IX, 1909, pp. 291-303 (plan), L. WENIGER shows that the seventy altars at which monthly offerings were made at Olympia were divided into two sections of fifteen different groups each. Two processions started from the Prytaneum, one visiting the altars chiefly within the precinct, and the other those chiefly outside of it. The route followed by each is given.

Handbook of Greek Archaeology.—In their *Greek Archaeology*, H. N. FOWLER and J. R. WHEELER publish a comprehensive survey of the whole subject. After a chapter on the study and progress of archaeology in modern times they take up in turn Prehistoric Greece; architecture (by Stevens); sculpture; terra-cottas; metal work; coins; vases; and painting and mosaic. The book is much fuller than any manual hitherto published and will serve as a complete introduction to the subject. A bibliography is appended. (*Greek Archaeology*, by Harold North Fowler and James Rignall Wheeler, with the collaboration of Gorham Phillips Stevens. New York, 1909, American Book Company. 559 pp.; 412 figs. \$2.00.)

Greek Lands and Letters.—In *Greek Lands and Letters* Professor and Mrs. ALLINSON publish a book intended for the lover of Greece and Greek literature. Topography, archaeology, and the Greek authors are drawn upon equally, one to illustrate the other. The book deals almost wholly with Greece proper, that is, with Attica, Central Greece, and the Peloponnesus, although casual references to the islands and the coast of Asia Minor are not lacking. The poetical translations of Greek authors are a notable feature. (*Greek Lands and Letters*, by F. G. and A. C. E. Allinson. Boston, 1909, Houghton Mifflin Company. xvi, 472 pp.; 4 maps; 16 pls. 8vo. \$2.50 net.)

Greek Terra-cotta Figurines.—In his *Diphilos et les modeleurs de terres-cuites grecques* (Paris, 1909, H. Laurens. 128 pp.; 148 figs.), E. POTTIER gives a concise account of Greek terra-cotta statuettes. He discusses their origin, object, and date; the development of the industry in Asia Minor and in Greece; its development and decline in Africa, Sicily, and Italy. The book is abundantly illustrated from the collection in the Louvre, which numbers about 4000 specimens, and to which it may serve as a guide. The name Diphilos is the most frequent of the signatures of coroplasts found at Myrina.

Terra-cottas from Samothrace.—In *Ath. Mitt.* XXXIV, 1909, pp. 23-28, C. FREDRICH publishes nine terra-cotta heads from Samothrace, now in the museum at Bonn, and gives a résumé of the history of the island from 769 A.D. down to the present day.

Two Hellenistic Bronze Vessels.—The two opposed tendencies in Hellenistic art, the Attic-Alexandrian, standing for a sharp distinction between conventional decorative design and naturalistic representative art, and the Asiatic (Ionian)-Roman, in which the two elements are combined, are discussed by A. HEKLER in his publication of two very beautiful inlaid copper and bronze vessels at Budapest, which were found at Egyed, Hungary, in 1831. They represent the high-water mark of Alexandrian toreutic, about the middle of the third century B.C., and have a quite different artistic feeling from the Augustan Roman work of the Hildesheim and Boscoreale treasures. The picture designs, which are discussed by F. W. v. BRASSING, a Nile scene of plant and animal life, a row of Egyptian gods and a ring of Egyptian crowns or head ornaments show the hand of a most skilful Greek artist dealing with subjects long familiar in Egyptian art. (*Jb. Arch. I.* XXIV, 1909, pp. 28-46; 2 pls.; 7 figs.)

The Universities of Ancient Greece.—In his *Universities of Ancient Greece* (New York, 1909, Charles Scribner's Sons. x, 367 pp.; 8vo; \$1.50), J. W. H. WALDEN discusses higher education in the Greek world during the time of the Roman empire. After sketching the subject during the fifth and fourth centuries B.C. at Athens and then during Macedonian times, he discusses education and the state; the establishment of university education in various places; its history and decline; the appointment and number of professors, their pay and position in society; the sophist's teaching, his methods and public displays; school-houses, holidays, etc.; the training of the sophist, his student days and later life.

Cults of the Greek States.—The fifth and concluding volume of Dr. Farnell's *Cults of the Greek States* contains chapters (with references and registers as in former volumes), on Cults of Hermes, Cult-Monuments of Hermes, The Ideal of Hermes, Cults of Dionysos, Dionysiac Ritual, Cult-Monuments of Dionysos, Ideal Dionysiac Types, Cults of Hestia, Cults of Hephaistos, Cults of Ares, and Minor Cults (Forces of Nature, Helios, etc., Rivers and Springs, Nymphs, Horae and Charites, Pan, Muses, *Ἐπαρίσ*, etc., the *Mavía*, Personifications of abstract ideas). The method is like that adopted in the earlier volumes, giving space and opportunity for many illuminating remarks in addition to the systematic treatment of the main themes. The illustrations include two coin-plates. There is an index to the entire work. (L. R. FARRELL, *The Cults of the Greek States*, in five volumes, Vol. V, Oxford, 1909, Clarendon Press [London, New York, Edinburg, Toronto, Melbourne, Henry Frowde]. xii, 496 pp.; 59 pls. 8vo. 18s. 6d. net.)

The Pythagorean Prohibition of Eating Beans.—In *Mennion*, III, 1909, pp. 93-96, W. SCHULTZ discusses the Pythagorean avoidance of beans, and comes to the conclusion that this was due to a philosophic conception of the universe of which the bean was chosen as the mystical symbol.

The Island Psytaleia.—In *'Eph. 'Apx.* 1909, cols. 45-56, P. D. RHEDIDES defends the traditional identification of the modern Lypsokoutala just outside the entrance of the straits of Salamis, as the ancient Psytaleia around which the battle of Salamis raged, citing abundant evidence

against Beloch's contention (*Klio*, 1908, pp. 477 ff.; *A.J.A.* 1909, p. 218), that Psyttaleia was the island well within the straits, now known as St. George.

Thasos. — The present condition of the island of Thasos (see *A.J.A.* XIII, pp. 84, 506; XIV, p. 112), with special reference to the ancient remains, was thoroughly studied, so far as this can be done without excavation by J. F. BAKER-PENOYRE in the summer of 1907, and the results, topographical and general, are published with an abundance of maps, plans, and other illustrations in *J.H.S.* XXIX, 1909, pp. 202-251 (10 pls.; 25 figs.). A few notes are added on the inscriptions, which were published earlier (*ibid.* pp. 91-102; *A.J.A.* XIII, 1909, p. 358). Among the ancient works still standing or to be traced are: the city walls and acropolis of the city of Thasos on the northern coast, some parts of the acropolis being older than the sixth century; the marble quarries near the southeastern corner of the island, where two monolithic columns and other worked stones are lying abandoned; and a number of Hellenic towers dotted about the island, some of which were lighthouses, some watch towers and forts to guard the coast and the valleys running inland, and others castles of refuge in case of invasion. A quaint little shrine of Pan, made from a natural grotto and adorned with simple carving on the rock, probably in the fourth century B.C.; a fine fifth-century funeral banquet relief, and a huge apotropaic eyes-and-nose cut on the town wall, are among the objects of interest. The island is very mountainous and thickly wooded. Many centuries of hopeless insecurity have so reduced the inhabitants in numbers and condition that they now attempt little but a primitive agriculture and fishing, the best farms being those owned by the communities of Mount Athos; only a small fraction of the area of the ancient capital is inhabited; and the great mineral resources of the island are untouched except in one spot and by a foreign company. Both the land and the surrounding water are of extraordinary beauty, and it is to be hoped that they may again become the home of a vigorous life.

The Greek Garden. — In *Ath. Mitt.* XXXIV, 1909, pp. 100-144, MARIE GOTHEIN gives a comprehensive survey, based on literary sources, of the gardens, groves, and parks in the Greek world from the age of Homer down to Byzantine times.

ITALY

ARCHITECTURE

The Domed Tomb at Vetulonia. — In *Jh. Oest. Arch. I.* XII, 1909, pp. 71-74 (fig.), J. DURM discusses the vault of the tomb at Vetulonia and shows that the practice of constructing a vault with pendentives over a square chamber must be an invention of the seventh century B.C.

Documents relating to the Septizonium. — In *Boll. Arte*, III, 1909, pp. 253-269 (2 pls.; 6 figs.), A. BARTOLI publishes the references to the Septizonium of Septimius Severus in ancient and mediaeval literature, as well as a list of the drawings and restorations of it made during the fifteenth and sixteenth centuries. Three sketches of the monument by Martin Heemskerck made between 1532 and 1536 and not previously published are reproduced.

Hadrian as a Builder. — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 172-177, T. RIVOIRA lists a number of structures built or rebuilt by Hadrian, and in discussing the arched roofs of the Pantheon, Hadrian's Villa Tiburtina, and

the Temple of Venus and Roma at Rome, points to the fact that this way of building roofs was the precursor of the Lombard and Gothic arches. The article forcibly contrasts Greek and Roman architecture.

The Porta Aurea of Spalato.—In discussing the decoration of the Porta Aurea at Spalato, once the north gate of Diocletian's Illyrian retreat, which is usually cited as the type of the false arcade, B. SCHULZ shows that the scheme is rather vertical than horizontal, owing to the superimposed niches of the middle and upper parts of the wall. The artistic feeling by which the ornament is concentrated and made to contrast with blank spaces, is characteristic of the architecture at the close of any long-continued period of artistic development. (*Jb. Arch. I. XXIV*, 1909, pp. 46-52; 3 figs.)

Notes on Vitruvius.—In *Harvard Studies in Classical Philology*, XXI, 1909, pp. 1-22, M. H. MORGAN publishes 'Critical and Explanatory Notes on Vitruvius.' The *viae* (93, 1 ff. = 4, 3, 6) are explained as the intervals between the *guttae*. The difference between *albarii*s and *tectorii*s (6, 7, 3, = 149, 24) is explained as that between enriched and plain stucco. Other notes are chiefly philological.

SCULPTURE

The Ara Pacis.—In *Abh. Sächs. Ges. XXVII* (No. 26), 1909, pp. 899-944 (7 pls.; 5 figs.), F. STUDNICZKA discusses the new fragments of the Ara Pacis and the conclusions to be drawn from them. Some interesting results are: The identification of Claudius in the flamen formerly called Augustus by F. von Duhn, on one of the reliefs walled into the back of the Villa Medici, none of which belong to the Ara Pacis; the dating of the procession represented (January 9, B.C.); the identification of the emperor's nieces, of Tiberius and his wife, of Lucius Caesar, of the pontifex (whose name cannot be given, but who is a *promagister*, the Pontifex Maximus being Augustus himself), of Augustus, and of several persons among his immediate attendants. The sacrifice to the Penates, the place of the fragment with the *ficus*, the restoration of the relief with the fig tree, the Tellus relief, the coins connected with it, the fragments of the Roma, the restoration of the Roma relief, are discussed in more or less detail.

The Antinous of Torre del Padiglione.—In *Ausonia*, III, 1908, pp. 3-17 (3 figs.), G. E. RIZZO discusses the fine relief representing Antinous, found at Torre del Padiglione in 1907 (*A.J.A.* XIII, p. 93).

The Great Gods of Samothrace on a Roman Relief.—In *Ausonia*, III, 1908, pp. 79-90 (fig.), R. PETTAZZONI publishes a relief in the Lateran Museum originally representing the busts of four divinities. The head of one is now missing. They are the *μεγάλοι θεοί* of Samothrace, known from a scholium to Apol. Rhod. *Argon.* I, 917, as *Axieros* (Demeter), *Axiokersos* (Hades), *Axiokersa* (Persephone), and *Kadmilos* (Hermes). They were also identified with the Penates. The slab was used as a lintel to the tomb of the Haterii, probably by a member of the family who had been initiated into the mysteries of the Cabiri. It dates from about 100 A.D.

The Marble Base from the Villa Patrizi.—In *Ausonia*, III, 1908, pp. 235-254 (3 pls.; 14 figs.), G. CULTRERA discusses the marble base found with many small fragments in the Villa Patrizi, and now in the Museo delle Terme. The monument consisted of floral decorations and figures and seems to have borne some resemblance to the *tropaeum* from

Adamklissi (DURM, *Baukunst der Etr. und Römer*, 2d ed., p. 734, fig. 805), but the object for which it was intended is not clear.

The Classical Sculptures of the Villa d' Este.—In *Archaeologia*, LXI, 1908, pp. 219-256 (10 pls.; fig.), T. ASHBY discusses the classical sculptures once in the Villa d' Este at Tivoli, and gives their present whereabouts so far as they are known.

Gallic Funerary Stelae in Liguria.—In *R. Arch.* XIV, 1900, pp. 52-54 (3 figs.), H. HUBERT publishes two stelae found in Liguria. One, now in the Museo Civico at Genoa, is surmounted by a male head and bears the inscription *Mezunemusus* in early Greek letters. The other is not only surmounted by a head, but the front represents in rude relief the rest of a nude belted man, bearing an axe, two darts, and a dagger. A few other similar stelae are known. The weapons, etc., are Gallic, and the stelae doubtless marked the graves of Gauls.

VASES

Apulian Vases.—The Reimers vase collection in Hamburg contains more than fifty funeral vases of Apulian ware, chiefly from the district of Bari, which have designs in white, yellow, and red paint, and incised lines, over a black or blackish glaze, imitating metal. They are distinguished from Campanian vases by a strip of unglazed clay surface just above the foot. The decoration consists of network, lines, dots, garlands of foliage and flowers, with objects of still life, animals and heads, but seldom a full figure. They form a class called by Lenormant Gnathia ware, from the town of Egnazia, on the coast between Monopoli and Fasano, but the place of manufacture is uncertain. They date from the end of the fourth to the second century B.C. These and similar vases show an active trade and artistic intercourse between Apulia and Egypt and Crete. (R. PAGENSTECHER, *Arch. Anz.* 1909, cols. 1-18; pl. 4 figs.)

Faliscan Vases.—In the Reimers collection at Hamburg are some forty or fifty Faliscan vases, many of them in black glaze with incised decoration in imitation of metal work. Whole figures are here common, and several features suggest the influence of Cretan-Cyprian or Phoenician metal ware. A curious caudarium with handles remotely resembling mourning figures and with two Pyrrhic dancers in the incised ornament is reproduced. One of the undecorated pithoi bears a graffito identical with that on a Capena olla, which is interpreted as *Sex[tus] Sent[ius]* or *Sex[ti] Sent[us]*. (R. BALLHEIMER, *Arch. Anz.* 1909, cols. 19-29; 3 figs.)

Arretine Moulds in New York.—In *B. Metr. Mus.* IV, 1909, pp. 124-130 (5 figs.), E. R. describes the three Arretine moulds acquired by the Metropolitan Museum in 1908 (see *A.J.A.* XIII, p. 375). One is a cover, 19.6 cm. in diameter, decorated with four masks of satyrs and festoons of grapevine. The other two are very beautiful moulds for bowls, one (22.2 cm. in diameter) adorned on each side with two winged maidens approaching an altar; the other (22.5 cm. in diameter) with a banquet scene. The writer also publishes the remarkable gold ear-ring in the form of a siren of the early part of the fifth century, and the three Tanagra statuettes, also acquired in 1908. Of the latter the most interesting (24.6 cm. high) represents a boy seated on a rock, and holding a small jug in his right hand.

INSCRIPTIONS

Venetic and Leptonian Inscriptions. — In *Skrifter utgifna af K. Humanistiska Vetenskaps-Samfundet i Uppsala*, XIII, 1909, pp. 1-33, O. A. DANIELSSON discusses the Venetic inscription on a bronze vessel found at Canevöi in the eighteenth century and now lost (cf. E. Lattei in *Rendiconti del R. Istituto Lombardo di scienze e lettere*, Ser. II, Vol. 34, 1901, pp. 1131 ff.). The last word *ecupetaris* probably indicates the object dedicated; the other words are proper names in the dative case which in Latin would be, *Ennoni, Ont(e)i, Appio, Selbo* († *Selbo Andeticis*). The inscription dates from about 200 B.C. The writer also discusses at length the Leptonian inscriptions, which are chiefly proper names. He concludes that the language was Ligurian strongly influenced by Celtic from at least 250 B.C. on.

The Syrian Sanctuary of the Lucus Furrinae. — In *Méл. Arch. Hist.* XXIX, 1909, pp. 239-268 (3 figs.), P. GAUCKLER discusses the inscriptions found during the recent excavations and at previous times in the sanctuary of the Lucus Furrinae on the Janiculum, and concludes that the sanctuary was sacred to the Heliopolitan couple Jupiter Heliopolitanus and Venus Caelestis, with whom the Sun-god was associated, forming a triad.

An Inscribed Fibula. — In *Ausonia*, III, 1908, pp. 49-54 (2 figs.), E. BRIZIO publishes a bronze fibula, found at Petrignano in the province of Parma a few years ago, bearing the word AVCISSA. He records seventeen others, and a possible eighteenth, so inscribed. The name is that of the maker, who probably lived in the second century A.D.

The Dacian Iron Works. — In *Klio*, IX, 1909, pp. 375-376, G. TÉGLAS publishes an inscription of the time of Caracalla found at Alsó Telek, 8 km. south of Vajdahunyad in 1903, and of interest in connection with the administration of the Dacian iron works. It reads *Numini | Domini n(ostr)i | M. Aur. Anton(i)n(i) Pię Fel(icis) Aug(usti) | G(aius) Gaur(ius) Gaur(ianus) sacerdos col(oniae) | Apul(ensis) et Fl(avius) Sotericus | aug(ur) col(oniae) Sarm(izegetusae) cond(uctores) | ferrariarum).*

Latin Inscriptions in Geneva. — In *M. Inst. Gen.* XIX, 1909, pp. 151-361 (168 figs.), E. DUNANT publishes in facsimile with transliteration and comment 92 Latin inscriptions in the Epigraphical Museum at Geneva; also 52 architectural fragments and pieces of sculpture in the same collection. In *Eranos*, IX, 1909, pp. 129-136, V. LUNDSTRÖM discusses ten of the inscriptions.

An Epigraphic Manuscript of Foucault. — In *C. R. Acad. Insc.* 1909, pp. 269-277, M. BESNIER shows that one of the two manuscripts containing Latin inscriptions lent by Nicholas Foucault to Graevius in 1701 is in the library of the Duke of Devonshire at Chatsworth.

Epigraphic Bulletin. — In their review of epigraphic publications relating to Roman antiquity for January-April, 1909 (*R. Arch.* XIII, 1909, pp. 436-456), R. CAGNAT and M. BESNIER give the text of 90 inscriptions (13 of which are in Greek) and notes on publications relating to epigraphy. *Ibid.* XIV, 1909, pp. 319-332, the review for May-August, contains the text of 145 inscriptions (three of which are Greek), with notes as before.

COINS

The Decadrachms of Agrigentum.—In *Le Musée*, VI, 1909, pp. 177-180 (fig.), E. J. SELTMAN argues that all the known decadrachms of Agrigentum except the one at Munich are forgeries. The position in which the reins are held is a sufficient proof of its genuineness (see *A. J. Num.* XLIII, pp. 160-163; fig.).

Tarentine Coins of Hannibal's Time.—The find of 114 coins in mint state struck at Tarentum during the Hannibalic occupation (ca. 212-209 B.C.) has already been described by AURELIO BELLENI in *Boll. Num.* VII, pp. 65-69 (cf. *A.J.A.* XIII, p. 515). It is further treated by M. P. VLASTO in *Num. Chron.* 1909, pp. 253-263, who acquired some of the coins, which he reproduces in a fine plate. He differs from BELLENI in believing the standard adopted to be that of the (reduced) Roman *denarius*, rather than of the Corinthian *drachma*.

The Copper Coinage of Sosius, Proculeius, and Crassus.—In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 215-229 (pl.), M. BAHRFELDT discusses the copper coinage of Sosius, Proculeius, and Crassus dating from the end of the Roman republic.

Senatorial Medallions.—In *R. Ital. Num.* 1909, pp. 343-364 (5 pls.), FRANCESCO GNECCHI, convinced by the arguments of CAMILLO SERAFINI, in an article read before the Accademia Pontificia Romana, February 28, 1895, retracts his former views concerning a classification of "senatorial medallions," expressed in *R. Ital. Num.* 1892, and proposes to apply that term to the coins of the empire, having otherwise the characteristics of medallions, which bear the letters S. C. Such issues are much rarer than the "imperial medallions" (without the S. C.), and begin before them (with Vespasian, so far as at present known, the "imperial" beginning with Hadrian). A description of all known types (38) of the larger size (the latest is of Maximian), accompanied by plates, is appended to the article.

Proconsulship of C. Asinius Pollio.—The proconsulship in Asia of C. Asinius Pollio is assigned by G. PANSA, on the basis of arguments from his coinage, to the period between 23 and 30 B.C. The author shows that such coinage of the Asiatic cities, where the name of the proconsul appears in the dative, is commemorative merely of a former governor, the name of a ruling governor being given in the genitive with ΕΠΙ (Riv. Ital. Num. 1909, pp. 365-378; ill.).

Alexandrian Coinage of Galba.—In *Num. Chron.* 1909, pp. 274-284 (ill.), J. G. MILNE describes the four different issues of billon tetradrachms from the mint at Alexandria during the reign of Galba. The reverse types are only five in number, which, with the varying obverses, make 24 separate coins, plus two varieties. The author had examined ten hoards (from 120 to about 280 A.D.), containing specimens of this coinage, the total number of pieces being 228.

The Iseum Campense on a Coin of Vespasian.—In *Sitzb. Berl. Akad.* 1909, pp. 640-648 (pl.), H. DRESSEL discusses the representation on a rare coin of Vespasian (Cohen, *Descr. hist. des monnaies frappées sous l'Empire romain*, 2d éd. I, p. 405, Nos. 484, 485), in which he recognizes the temple of Isis in the Campus Martius. The front of the peribolus, a structure with Corinthian columns and a semicircular gable, is represented, and within is

seen the temple proper, in which stands the statue. There is in the whole *ensemble* a curious mixture of Egyptian and classical elements. The interpretation is supported by Josephus (*Bell. Jud.* VII, 5, 4) and Cassius Dio (79, 10).

Medallions on Military Ensigns. — GIOVANNI PANSA publishes in *Boll. Num.* VII, 1909, pp. 145-147, 159-165 (fig.), a bordered medallion of Marcus Aurelius acquired from a private collection in Rome, and still insists, as against FR. GNECHI, that all the bordered medallions without exception served the sole purpose of decorations of military standards (cf. *A.J.A.* XII, p. 241; XIII, p. 225).

The Temple of Cybele. — Numismatic material of the Antonine age, bearing on the temple of Cybele on the Palatine, is discussed by KATHARINE ESDAILE in *Röm. Mitt.* XXIII, 1908, pp. 368-374 (pl.).

Distribution of the Coinage of Alexander Severus. — In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 311-332, W. THIELE publishes a list of places where coins of Alexander Severus were struck, bringing Cohen's list (IV, pp. 476 ff.) up to date. The head of the emperor always appears in the same form in the provinces from 218 to 263 wherever the coin was struck.

Fulvia Plautiana Sebaste. — In *Mb. Num. Ges. Wien*, VIII, 1909, pp. 117-119, JOSEPH SCHOLZ argues on the basis of numismatic evidence for the recognition of this Plautiana as a historical personage, although otherwise unknown, and against her identification with the empress Plautilla.

GENERAL AND MISCELLANEOUS

The Civilization of the Nuraghi of Sardinia. — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 3-48 and 87-117 (8 figs.), E. PAIS, after briefly discussing the uses to which the three or four thousand circular stone structures known as *nuraghi* were put, combats the tendency to connect them, as well as almost all other archaic finds, with Crete, for he thinks that explorations in Syria and Asia Minor may at any time upset prevailing theories. He disbelieves the stories of Greek writers connecting these remains with Heracles, the Theban Iolaus, and Daedalus, and refuses also to recognize Sardinians in the Shardana who invaded Egypt in the nineteenth dynasty, insisting that the Sardinians were never a sea-power. He is inclined to think that Tyrian influence coming directly by sea or through Carthage and Spain may be recognized in these monuments of the Nori. They were used probably as fortified abodes (not as tombs, as Pinza still thinks), and are often found grouped together in large settlements. Pais compares them with the Apulian Casedde or Truddi, which are, however, not so massively built. Many of the finds near them, arms, utensils of copper, statuettes of shepherds, priests, soldiers, boats surmounted by a cow's head, suggest a connection with Etruria, and point to an epoch immediately preceding historic times, or even to the time of Punic greatness. Taramelli puts them between the end of the third and beginning of the second millennium B.C. Some specimens of writing are reproduced, as also a trophy (?) formed of three spears inserted in a mass of copper. In the second article some sociological inferences are drawn and the way pointed out to a more careful study based on the life of the Sardinians of to-day. The systematic arrangement of *nuraghi* about an elevated pasture district, Giara di Gesturi, in the province

of Cagliari, so as to protect the roads and springs and the cultivated fields on the surrounding slopes, has been examined by A. TARAMELLI (*Arch. Anz.* 1909, cols. 136-139; fig.), and this, together with the details of the structures themselves, strongly fortified dwellings, gives a fairly clear picture of the life of the pre-Phoenician inhabitants. In the archaic period the coast regions presented a species of mixed civilization. In *Ausonia*, III, 1908, pp. 18-48 (33 figs.), D. MACKENZIE examines the relation of *nuraghi* and Giant's Tombs in various parts of Sardinia. The *nuraghi* of Lo, Calameira, Massonibroccos, Noedda, Ulei, Praidis, Gennacili, Su Chiai, Serucci, Imbertighe, and San Gavino are discussed in connection with the Giant's Tombs at Santa Luisu, Fontana Morta, Ispluncas, Noedda, Camposorige, Ludueira, Campo Selenes, Su Chiai, Isarus, Imbertighe, and San Gavino. (See *A.J.A.* XII, pp. 470-471; XIII, pp. 221 and 510.)

Prehistoric Remains at Matera.—In *Annals of Archaeology and Anthropology*, II, 1909, pp. 72-90 (4 pls.; 2 figs.), T. E. PEET points out the importance of the prehistoric remains in the vicinity of Matera in southern Italy. They date from neolithic times and later. He divides the pottery into seven classes.

The Etruscan Civilization of Felsina.—In *Rend. Acc. Lincei*, XVIII, 1909, pp. 192-223 (5 figs.), P. DUCATI reviews the contents of two Etruscan graves of the early fifth century B.C., found near Bologna and excavated, the one by Von Duhn and the other by Brizio, in order to compare three burial urns found in 1896 beyond Porta S. Isaia. He concludes that the latter, for topographical reasons, are the earlier, and justify placing the descent of the Etruscans into the region of Bologna in the decades following the middle of the sixth century. The article discusses at length the differences in manner of growth of the Italian and Etruscan necropoleis and the encroachment in the latter of the Italian custom of burning the dead instead of burying them. Attic vases, Ducati thinks, found their way into Felsina by way of Adria, not, as Helbig supposes, via Sicily. The acropolis of Felsina he places on a hill between Porta Saragozza and the Aposa.

The Different Races in Sicily.—In *R. Stor. Ant.* XII, 1909, pp. 459-482, V. COSTANZI argues that the ancient writers Thucydides, Antiochus of Syracuse, etc., depended upon legends in their statements about the different races in Sicily. There was no racial difference between the Sicanians and the Sicels, as is shown by archaeological discoveries; but there was such a difference between the neolithic and neolithic civilizations. The neolithic inhabitants were non-Aryan and non-Italic; those of the Bronze Age Italian invaders. He suggests that the Elymi were the autochthonous inhabitants driven to the west end of the island by the arrival of Sicanian-Sicel invaders. There is as yet no satisfactory evidence that prehistoric Cretans invaded Sicily. The tradition of a difference between Sicanians and Sicels probably arose from geographical distinctions and from the fact that the Sicels about Syracuse fell under the influence of the Greeks, and the Sicanians about Agrigentum under that of the Carthaginians.

The City of Servius.—In *Ci. Phil.* IV, 1908, pp. 420-432, E. T. MERRILL discusses 'The City of Servius and the Pomerium,' and maintains that the city of Servius Tullius is not identical with that enclosed by the existing fourth century 'Servian Wall,' and did not enclose the Aventine. The *pomerium* consequently did not enclose the Aventine till the time of Claudius,

though strategical necessity brought about its inclusion within the existing ring-wall.

The Beginnings of the Forum Boarium. — In *Mél. Arch. Hist.* XXIX, 1909, pp. 103–144 (plan), A. PIGANIOL revives the theory of Bunsen and Urlichs that the Servian wall connected the Capitol and the Aventine and did not descend to the Tiber. The porta Carmentalis was then south of the Capitol at the end of the vicus Jugarius, the porta Trigemina was between the Aventine and Sta. Maria in Cosmedin, and the Forum Boarium was almost entirely outside of the wall. The ruins under and behind Sta. Maria in Cosmedin are those of the Ara Maxima, and the round temple (Sta. Maria del Sole) is that of Hercules. The harbor (portus Tiberinus) was where the Forum Boarium reached the river. The temples of Fortuna and Mater Matuta were not far from the Piazza Sta. Maria della Consolazione. The position of the western gates in the Servian wall and several other topographical details are discussed.

The Via Salaria. — In *Röm. Mitt.* XXIII, 1908, pp. 275–329 (12 figs.), N. PERSICHETTI presents the results of fresh studies of the Via Salaria, which he is convinced has many remains of pre-Roman construction. He gives special attention to those sections of the road in the immediate vicinity of the city, and near Rieti.

The Domus Aurea in the Topographical Documents of Mediaeval Rome. — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 224–230, A. BARTOLI, discussing *Tabularium S. Mariae Novae ab anno 982 ad annum 1200 (Arch. Stor. Patr.* XXIII–XXVI), identifies the following: *Domus Nova* with the Basilica of Constantine; *Trivio Cambiatoris*, as near the corner of the Thermae of Titus; *via publica* with via del Colosseo; *ortuo de eccl. S. M. Nore* with the rear portion of S. Maria Nova; *Templum Romuli* with the Temple of Venus and Rome; in *Quatronis* with piazza del Colosseo.

The Obelisk in the Piazza Navona. — The hieroglyphics of Domitian's obelisk, in the Piazza Navona, are transcribed and interpreted by G. FARINA in *B. Com. Rom.* XXXVI, 1908, pp. 254–274. The now sadly damaged obelisk, brought to its present position in 1649, was probably first erected near the Temple of Isis. In its inscription the emperor bears the titles of a Pharaoh.

The Barberini Collection of Antiquities from Praeneste. — In *Bol. Arte*, III, 1909, pp. 161–211 (2 pls.; 34 figs.), A. DELLA SETA discusses the more important objects in the Barberini collection of antiquities from Praeneste now in the museum of the Villa Giulia, Rome. They are of gold, silver, bronze, and ivory, and are to be dated either in the seventh century n.c. or in the third or second century.

The Chariot from Monteleone. — In *Jh. Oest. Arch.* I. XII, 1909, pp. 74–80 (3 figs.), P. DUCATI argues that the three reliefs on the front and sides of the chariot from Monteleone, now in the Metropolitan Museum in New York, represent three episodes in the career of Achilles. In the centre Thetis is presenting Achilles with his arms; on the right is his battle with Memnon over the body of Antilochus; and on the left his departure for the Islands of the Blest.

Primitive Bronze Disks. — In *Le Musée*, VI, 1909, pp. 209–213 (4 figs.), A. SAMBON discusses the early bronze disks ornamented with fantastic figures of animals found in central Italy. They were probably attached to

a background of leather, but the use to which they were put can only be conjectured. Three specimens are described.

The Naples Bronzes.—The Field Museum of Chicago has issued a detailed catalogue of the reproductions of bronzes, etc., in the Naples museum in its possession. It is the work of Professor TARBELL. Each object is carefully described and illustrated and the place of its discovery, where known, and the literature given. There are three hundred entries in all, but no statues or statuettes are included. No such catalogue of the originals exists. (*Catalogue of Bronzes, etc., in the Field Museum of Natural History*. By F. B. Tarbell. Field Museum of Natural History. Publication 130. Anthropological Series, Vol. VII, No. 3. Chicago, 1909; 52 pp.; 82 pls.)

The Tablets from Locri Epizephyrī.—In *Ausonia*, III, 1908, pp. 136-234 (84 figs.), Q. QUAGLIATI gives an account of the tablets or *pinaces* found on the site of Locri Epizephyrī in 1906. They are square in shape, 20-30 cm. long on each side, and 5-10 mm. thick, and are made of a poor clay common in the neighborhood. The designs were stamped on and the tablet then painted. The background is usually blue and the other colors used are red, pink, green, yellow, and white. They date from the end of the sixth century to about 400 B.C. and show the influence of Ionic art. Among the subjects represented are a visit to the tomb; the worship of the heroic dead; the rape of Persephone; also a beardless male figure in a chariot drawn by winged horses holding a female figure in his arms; Hades, Persephone, and Hermes; Hermes alone with winged hat holding a cock; Hermes and Aphrodite; Eros; Demeter; a woman seated before a large chest or basket with raised lid and an infant inside; scenes from daily life; female figures before a tree; small temples, etc. These objects are now in the museum at Tarentum. The deity to whom they were dedicated has not yet been identified.

A New Fable.—In *Ausonia*, III, 1908, pp. 71-78 (pl.; fig.), G. PATRONI publishes the upper part of a Roman grave relief in the museum at Cremona, upon which are a fox and a cock facing each other. Above the fox are the words *Salve tu*; and above the cock *Novi te*. A fable not otherwise known was apparently represented on the stone.

Latin Palaeography.—A new publication of Latin manuscripts in photographic facsimiles, with brief descriptive text in Latin, has been issued by B. G. Teubner. The facsimiles reproduce twenty-five pages from twenty-two manuscripts (in Bamberg, Berlin, Erlangen, Florence, Madrid, Paris, Vienna, and Wolfenbüttel) in the original size and afford a general view of the different styles of writing to the fifteenth century. The plates are accompanied by a brief description in Latin. The price is low, to encourage introduction in schools. (*Palaeographia latina. Exempla codicium latinorum phototypice expressa scholarum maxime in usum edidit M. IHM*. Series I. Lipsiae, 1909, B. G. Teubner. 16 pp. 8vo; 22 pls. Folio 5 Mk.)

FRANCE

The Dimensions of the Amphitheatre at Nîmes.—In *R. Arch.* XIV, 1909, pp. 264-267, J. A. DECOURDEMANGE gives, after Auguste Pelet, *Description de l'amphithéâtre de Nîmes* (3d ed., Nîmes, 1866), the dimensions and proportions of the amphitheatre at Nîmes, one of the best-preserved

Roman buildings. The figures show the great exactness of the work. From them the length of the Drusic foot employed (0.3196 m.) could be deduced if it were not known from other sources.

The Date of the Triumphal Arch at Orange.—In *C. R. Acad. Insc.* 1909, pp. 513-518, S. REINACH shows that the words of Vincentius (fifth century A.D.) in his commentary to the fifteenth Psalm, *Unde Aurasicae (sic) in arcu triumphali Massiliense bellum sculptum habetur, ob signum victoriae Caesaris*, are correct. The arch was erected by the father of Tiberius soon after 46 B.C., to commemorate Caesar's victory over the people of Marseilles. The inscription of Tiberius was added when the latter as emperor in his turn put down a rebellion in Gaul.

The Black Gate of Besançon.—In *R. Arch.* XIV, 1909, pp. 254-261 (11 figs.), S. REINACH publishes, with comments, new drawings (by Mr. Spitz of Besançon) of the reliefs of the *Porte Noire* of Besançon, to supplement or replace those given in his *Répertoire de reliefs* (1909), I, pp. 78-82.

The Enclosure at Saint-Pierre-en-Chastre.—In *M. Soc. Ant. Fr.* LXVIII, pp. 160-184 (2 plans; fig.), O. VAUVILLÉ argues that the ancient enclosure at Saint-Pierre-en-Chastre (Oise) is the site of an *oppidum* of the Suessiones. Excavations have brought to light objects dating from the neolithic period and later.

Inscriptions from Vendoeuvres-en-Brenne.—In *M. Soc. Ant. Fr.* LXVIII, 1909, pp. 185-214 (5 figs.), A. HÉRON DE VILLEFOSSE discusses two Latin inscriptions found at Vendoeuvres-en-Brenne (Indre), one of which records the erection of buildings and shows the importance of the town in Roman times. The word *diribitoria* occurs in this inscription. He also publishes a carved block upon which is a seated divinity with stag's horns on his head and a nude boy standing on either side of him.

Bas-reliefs of Roman Gaul.—In his *Recueil général des bas-reliefs de la Gaule romaine*, II, Aquitaine (Paris, 1908, Imprimerie Nationale. viii, 478 pp.; 1100 figs. 4to), É. ESPRÉANDIEU continues his description of the bas-reliefs of Roman Gaul. A few reliefs earlier than the Roman period and a few pieces of sculpture in the round are included in this volume. Each object is briefly described and usually reproduced, and if it has already been published, its bibliography is added.

A Gallo-Roman Symbol of Devotion.—At the temple of the Mont de Sène, of Massigny-les-Vitteaux, of Essarois, of the Seine, and elsewhere statues have been found which represent persons holding offerings. These persons have on the front and back of their bodies large disks supported by bands which pass over the shoulders and round the waist. These were explained by Baudet as *bullae*. In *R. Arch.* XIII, 1909, pp. 358-362 (2 figs.), É. ESPRÉANDIEU explains them as symbols or signs of devotion. The originals were probably of woven material.

Roman Frescoes at Sainte-Colombe-les-Vienne.—In *B. Soc. Ant. Fr.* 1909, pp. 202-204, A. HÉRON DE VILLEFOSSE reports that there are remains of thirty-five Roman frescoes at Sainte-Colombe-les-Vienne.

Two Ancient Bronzes.—In *B. Soc. Ant. Fr.* 1909, pp. 182-187 (2 figs.), A. HÉRON DE VILLEFOSSE discusses two ancient bronzes in the collection of Charles Mège at Paris. One represents a panther with left front paw raised and resting on a vase. This was found thirty years ago at Puy-Saint-Martin. The other, found in 1898 at Cerro de Montemolin, Spain, and

published by P. Paris (*R. Ét. Anc.*, I, pp. 163-167), is a pair of terrets ornamented with the figure of a Greek seizing a mounted Amazon by the hair.

Astrology in Gaul.—In his *Astrologie chez les Gallo-Romains* (Bordeaux, 1909, Feret et Fils; Paris, A. Fontemoing 182 pp.; 2 figs. 8vo. 10 fr.), H. DE LA VILLE DE MIRMONT publishes a history of astrology in Gaul from its Graeco-Roman beginnings to the sixth century A.D. The work first appeared in instalments in *R. Et. Anc.*

Chemical Analyses of Celtic Coins.—In *Z. Ethn.* XLI, 1909, pp. 458-462, R. Forrer of Strassburg presents the results of analyses of various Celtic coins made by, or under the supervision of, C. Virchow. The coins were from various places, chiefly in France and Hungary.

BELGIUM

Megaliths in Belgium.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 52-55 (3 figs.), A. DE LOË gives a brief account of the megaliths at Wéris, Exel, Frasnes, and Baileux in Belgium.

A Portrait Head in Brussels.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 25-26, F. C. discusses a marble portrait head in the museum at Brussels and dates it in the fourth century A.D.

Egyptian Antiquities in Brussels.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 41-44, 55-56, 65-66, 76-78, and 85-86 (8 figs.), J. CAPART catalogues seventy acquisitions from Egypt and describes the more important objects in the collection.



FIGURE 4.—TERRA-COTTA VESSEL FROM CHIETI.

Danube, are ultimately derived from the use of gourds and other hard-shelled fruits as vessels, sometimes with handles and hangers of basket or

GERMANY

Primitive Arts.—At the November (1908) meeting of the Berlin Archaeological Society, C. SCHUCHHARDT showed how the pottery of northern Europe, of which the megalithic graves of northern Germany have yielded the oldest examples, was developed from basketwork, perhaps with an intervening stage of baskets stiffened with clay, and that it had its decoration on structural lines, while the vases of southern Europe, as far north as the

network, and had greater freedom in their decorative schemes. The occasional appearance of basketwork designs as far south as Boeotia is noteworthy. Further, the head ornament of the Trojan treasure and the neck, arm, and belt plates of the Bronze Age in the north are imitations of knotted and sewn string or thread. (*Arch. Anz.* 1909, cols. 36-37.)

Local Archaeology in Southwestern Germany.—In *R. Arch.* XIV, 1909, pp. 290 f., S. R. gives the titles of papers read at the meeting of the archaeological society of southern Germany held at Worms in September, 1909. The papers treated of Roman and pre-Roman remains. Notes on the rich museum at Mainz, the admirably organized museum at Darmstadt, the Prehistoric Museum and the Wallraff-Richartz Museum at Cologne, the museums at Trèves, Luxemburg, and Metz are added, and the restoration of the Saalburg, near Homburg, is highly praised.

A Terra-cotta Vessel in the Antiquarium in Berlin.—In *Ber. Kunsts.* XXX, 1909, cols. 263-269 (fig.), R. ZAHN discusses a shallow terra-cotta vessel in the Antiquarium, Berlin (Fig. 4), probably found at Chieti, the ancient Teate, near the east coast of Italy. It is round, with a handle in the shape of a ram's head on one side, and is decorated in the centre with a trophy and armor roughly modelled. The trophy may commemorate a victory over the Samnites. Two other similar vessels are known, one in Göttingen and the other in Alexandria. It dates from the first century B.C.

AUSTRIA-HUNGARY

Roman Grave Stelae.—In *Jh. Oest. Arch.* I. XII, 1909, pp. 224-242 (4 figs.), H. HOFMANN publishes four Roman grave stelae found at Walbersdorf, near Ödenburg, Hungary. Two of them have half-length portraits of the deceased and his wife above and an epitaph below. The other two are of the same style except that one of them has a man's head above, and the other the head of a man and a woman. All of them seem to date from the first century A.D.

A Pannonian Casket.—A Pannonian casket in the National Museum at Budapest (discovered at Intercisa in 1906) is described and compared with other similar caskets from the Danube and Rhine provinces by R. ENGELMANN in *Röm. Mitt.* XXIII, 1908, pp. 349-367 (pl.; 2 figs.). The bronze ornaments, which alone have been preserved, are medallions of Bellerophon, Hercules, etc., and Gorgon heads. They are of the age of Constantine.

GREAT BRITAIN

The Chronology of the British Bronze Age.—In *Archaeologia*, LXI, 1908, pp. 97-162 (209 figs.), O. MONTELIUS attempts to establish the chronology of the Bronze Age in Great Britain and Ireland, dividing it into five periods as follows: *Period I*, the Copper Age, from the middle of the third millennium B.C., or earlier, to the middle of the second millennium. *Period II*, from the beginning of the second millennium to the seventeenth century. *Period III*, from the seventeenth century to the end of the fifteenth. *Period IV*, from the end of the fifteenth to the middle of the twelfth century. *Period V*, from the middle of the twelfth to the end of the ninth century. The Iron Age in Great Britain and Ireland began about 800 B.C.

The Stone Circles of East Cornwall. — In *Archaeologia*, LXI, 1908, pp. 1-60 (8 pls.; 6 figs.), H. S. GRAY describes the five stone circles of East Cornwall known as the Stripple Stones, the Trippet Stones, the Leaze Stone Circle, the Fernacre Stone Circle, and the Stannon Stone Circle. Near the last two are numerous hut circles which seem to be contemporary, but no human remains have been found in any of them except a few flint flakes from the Stripple Stones discovered by the excavations of 1905. The position, size, and condition of every stone in the five circles is recorded.

AFRICA

The Nybgenii. — In *C. R. Acad. Insc.* 1909, pp. 568-579 (map), R. CAGNAT publishes inscriptions which show that the *Nyγβηνοί* of Ptolemy (IV, 3, 6) were called Nybgenii. Their principal town was *Civitas Nybgeniorum*, later known as *Turris Tamalleni*.

The Punic Necropolis of Ard el Kheraib. — In *Notes et Documents*, III, 1909 (84 pp.; 7 pls.; 61 figs.), A. MERLIN and L. DRAPPIER describe the Punic cemetery excavated at Ard el Kheraib, west of the hill of Bordj Djedid, Carthage (see *A.J.A.* XIII, p. 373). The burials were made at the bottom of a shaft, usually from 10 to 15 m. deep, or in a chamber leading from the shaft. The body was generally placed in a coffin of wood, or rarely of stone, but was sometimes cremated. Considerable local pottery, silver jewelry, etc., was found, as well as Punic coins of bronze and one of gold. The necropolis dates between 400 and 300 B.C. and resembles that at Ard el Morali. The contents of the graves throw some light on the influence of Greek civilization on Carthage. The 108 tombs opened are described in detail by Drappier.

The Epitaph of the Priestess Hanni-Ba'al. — In *C. R. Acad. Insc.* 1909, pp. 259-268, E. VASSEL discusses the epitaph of the priestess Hanni-Ba'al from Bordj Djedid, Tunis, briefly mentioned *ibid.* 1907, p. 804. The names *Bod-Melqart*, *Qart-jaton*, and *Qart-mašal* lead him to conclude that the Carthaginians had a divinity called *'El-qart* or *Ba'al-qart* identical with the Genius of the town; that his name may have been shortened to *Qart* and thus have become the eponym of Carthage.

The Inscription from Ain-Ouassel. — In *Klio*, IX, 1909, pp. 377-378, A. MERLIN discusses the text of the Latin inscription from Ain-Ouassel.



FIGURE 5.—MARBLE HEAD IN
CAMBRIDGE.

Genseric and the Ship at Mahdia. — In *B. Soc. Ant. Fr.* 1909, pp. 205-208, F. MARTROYE calls attention to Procopius, *De Bello Vandalico*, I, 5, where it is related that after the sack of Rome one of the ships of Genseric, which was carrying statues, sank on its way to Carthage. He suggests the possibility that this is the ship found off Mahdia.

UNITED STATES

The Fogg Art Museum.—In *B. Mus. F. A.* VII, 1909, pp. 21–35 (18 figs.), E. W. F. and G. H. CHASE give a brief account of the collections in the Fogg Art Museum of Harvard University, the former describing the paintings, the latter the classical antiquities. A Meleager, an Aphrodite of Hellenistic date, a female head of the fourth century (Fig. 5), one of the archaic bronze tripods (C) published in *A.J.A.* XII, pp. 287 ff., and the collection of Arretine moulds are especially noteworthy.

EARLY CHRISTIAN, BYZANTINE, AND MEDIAEVAL ART

GENERAL AND MISCELLANEOUS

The Church of the Holy Sepulchre at Jerusalem.—In *R. Arch.* XIV, 1909, pp. 42–51, L. PARMENTIER discusses the text of the letter of Constantine to Bishop Macarius of Jerusalem concerning the building of the church of the Holy Sepulchre as given by Eusebius, Theodoret, and others. The nave (*kappa*, also elsewhere *oikos*) was to have a gilded coffered ceiling. At each side was one aisle of two stories. Here also the ceilings were to be gilded.

Byzantine Churches in Constantinople.—Under the title ‘Une mission à Constantinople,’ 1907–1908, JEAN EBERSOLT (*R. Arch.* XIV, 1909, pp. 1–41; 5 pls.; 30 figs.) gives the results of his researches in churches at Constantinople now converted into mosques. By chance the column of Marcian became accessible, and its base is described. On three sides is a garland encircling a shield on which is a six-branched cross. On the front were two Victories in relief, only one of which is preserved, now much mutilated. The body is well proportioned and full of life, and the drapery is excellent. The Byzantine sculptors of the fifth century were still true to the ancient traditions. The churches described are: a basilica, Mir-Achor-Djami; an octagon, Kutchuk-Aya-Sophia; a church with three conchs, Hodja-Mustafa-Pacha-Djami; and seven cruciform churches, Kalender-Djami, Atik-Mustafa-Pacha-Djami, Gul-Djami, Boudrum-Djami, Kiliseé-Djami, Eski-Imaret-Djami, Fétiyé-Djami. The plans, construction, and decoration are described, with illustrations, and mistakes in previous descriptions are corrected.

The Basilicas of St. Cyprian.—In *R. Arch.* XIV, 1909, pp. 188–202, CH. SAUMAGNE discusses the basilicas of St. Cyprian at Carthage. The site of the one in the *Ager Sexti*, the place of the martyrdom, is not disputed. That of the basilica *juxta Piscinas* in the *Areæ Macrobiæ* has been placed on the Koudiat-Soussou, but topographical considerations render this impossible. Its probable site was outside the ancient city, near some springs, by the sea, near the promontory Sidi-Bou-Said. There was no third basilica.

Four Byzantine Churches in Argolis.—The churches at Plataniti, Chonika, Merbaka, and Areia are published by A. STRUCK in *Ath. Mitt.* XXXIV, 1909, pp. 189–236 (4 pls.; 9 figs.). The three latter belong to the same period, that at Chonika being the earliest. The church at Merbaka is dated in 1148–49 A.D. by a building inscription.

Architectural Refinements in Mediaeval Churches.—In *The Architectural Record*, XXVI, 1909, pp. 132–139 (5 figs.), C. S. HASTINGS proposes

a method by which the architectural refinements in mediaeval churches may be tested and accurately measured from photographs with the help of a dividing machine and a comparator. Photographs of the church of St. Ouen at Rouen are used for purposes of illustration.

Regulations for the Foundations of Buildings.—In *Un formulaire du VIII^e siècle pour les fondations d'édifices et de ponts* (Paris, 1908, Picard et Fils. 35 pp.), V. MORTET publishes with comment portions of a Latin treatise giving rules for the construction of the foundations of buildings and bridges. The treatise was first published in *Archaeologia* (XXXII, pp. 183–241), from a manuscript of the twelfth century, but two earlier manuscripts are known, one of the tenth, and one of the eighth century. The work goes back to some Roman writer on architecture.

The Meaning of the Word "Apse."—In *Lexicographie archéologique* (Paris, 1908, Picard et Fils. 9 pp.) V. MORTET shows that the word "apse" (*ἀψίς, absis*) among the Byzantines, as among the Romans, meant a portion of a circle less than half the circumference. In popular speech it may have been used to indicate a semicircle.

A Byzantine Coin Amulet.—In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 333–334 (fig.), K. M. KONSTANTOPOULOS shows that a small Byzantine coin published by N. Froehner (*Collection Photiades-pacha, Monnaies byzantines*, p. 49), is really an amulet. On the obverse about the head of the deity are the words, ΑΓΙΟΣ, ΑΓΙΟΣ, ΑΓΙΟΣ; and on the reverse ΒΓΗΑ CV ΔΟΠΙΤΕ, which he interprets 'Υγεία[ν] σοὶ δωρέαται.'

Byzantine Seals.—In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 335–366, N. A. VEES publishes the first part of an article on the interpretation and classification of Byzantine seals, discussing twenty-nine specimens.

Oriental Calligraphy.—In *R. Arch.* XIV, 1909, pp. 71–74, CLÉMENT HUART calls attention to the importance of the study of Oriental (Arab) calligraphy in its relation to archaeology. Calligraphic styles have individuality as styles of painting have, and knowledge of calligraphy may aid in assigning works of art to their proper authors and in detecting forged signatures.

A Mediaeval Greek Inscription.—A copy of the Greek inscription set up by Antonio le Flamenc in the church of St. George at Carditza in Boeotia, is published by W. MILLER, in *J.H.S.* XXIX, 1909, pp. 198–201, without transliteration except that of Buchon, which is incorrect, and without translation. The date is said to be fixed by the new copy as 1311, the year of the battle of the Cephissus, from which Antonio was one of the few survivors. The dedication may have been in fulfilment of a vow made before the battle. Steps have been taken to secure the plastered wall on which the inscription is painted.

Gold Ornaments from Southern Russia.—In *Ber. Kunsts.* XXXI, 1909, cols. 21–24 (2 figs.), H. SCHMIDT publishes two inlaid gold ornaments, perhaps originally attached to weapons and now in the Berlin Museum. They are evidently from southern Russia and date from about 500 A.D.

Notes from Germany.—In *R. Arch.* XIV, 1909, pp. 291 f., S. R. praises the volume on Roman Cologne (Vol. I in *Kunstdenkmäler der Rheinprovinz*) by J. Klinkenberg, gives some notes derived from a manuscript list in the library at Mainz, on restorations of paintings ceded to the museum of the

city by the French government in 1803, briefly describes a copy, in the historical museum at Frankfort, of the 'Descent from the Cross' in the Louvre, ascribed to Van der Weyden or to Bouts (the copy preserves the wings, on which are Sts. Peter and Catherine in grisaille), and mentions the following objects in the little-known city museum (*Rothes Haus*) at Trèves, to which the late F. X. Kraus bequeathed his collection of pictures and objects of art: a Siennese "Virgin and Child" (probably by Matteo di Giovanni), a Crucifixion on a gold ground, attributed to Giotto, a realistic marble head of Christ, apparently carved in northern Italy about 1400, and a bas-relief of Socrates and Alcibiades, by Canova.

The Conical Buckled-helmets (Spangenhelme) of the Baldenheim Type.—In *Z. Ethn.* XLI, 1909, pp. 506–507 (fig.), MAX EBERT discusses the many conical helmets of the early Middle Ages, formed by riveting together four triangular pieces of metal, concluding that their archetype was made in the Greek workshops of the Bosporus and Pontus. They offer us very early examples of workmanship in cloisonné.

Mediaeval Ivories.—In *Gaz. B.-A.* II, 1909, pp. 301–323 and 389–403, A. MASKELL publishes articles on 'Sculpture in Ivory at the Beginning of the Christian Era, and in the Byzantine Epoch.' They amount to an argument in favor of a generally later date for monuments of this class than is usually assumed, and greater reserve in the assignment to schools.

A Mediaeval Canon of Human Proportions.—The *Liber divinorum operum simplicis hominis* (Migne, *Patrologia Latina*, Vol. 197, cols. 741 ff.) contains some remarkable reflections on the proportions of the body which amount to a canon. These passages are quoted in *Rep. f. K.* XXXII, 1909, pp. 445–446, by I. HERWEGEN.

The Origin of Mediaeval Stalactite Ornament.—The source of the mediaeval stalactite ornament is not to be found in Islamic architecture, but is derived from the Roman niche. The columns which stood in front of this were incorporated in the niche, and this being done the problem of turning a corner with such a wall-arcade was solved by projecting the half-dome of the niche from the corner and putting the columns under it. The next step was to take away the columns, leaving the half-dome across the corner as a convenient transition from a quadrate to an octagonal plan. Islamic architecture developed this motif into a spreading fan of successive rows of half-domes or niches, and this is the primitive form of the stalactite ornament. This carried with it the stamp of Roman origin in its use of the Roman shell to decorate the niches. Other mediaeval motifs of Roman origin are the arch-frieze, derived from the old Roman wall arcade by omission of the columns and such zigzag ornament as is found in the Mschatta façade, which comes by the elimination of columns from a similar wall-arcade with gables instead of archivolts. (B. SCHULZ in *M. f. Kunstw.* II, 1909, pp. 328–337.)

An Ethiopian Life of St. Menas.—M. CHAÎNE in *N. Bull. Arch. Crist.* 1909, pp. 71–78, calls attention to an Ethiopian Life of St. Menas, existing in several manuscripts, by which we may unify the conclusions drawn by Kaufmann from his excavations of the Menas-shrine at Mariout in Egypt. It also furnishes valuable evidence regarding the date of this monument, or collection of monuments, the relation of the camel to Menas, and his iconography.

ITALY

The Cathedral at Genoa. — In *Le Musées*, VI, 1909, pp. 163–175 (5 figs.), C. ENLART discusses the cathedral at Genoa, calling attention to its importance for French Gothic art.

Horizontal Curves in Pisa Cathedral. — In *Am. Archit.* XCVI, 1909, pp. 233–240 (11 figs.), W. H. GOODYEAR discusses the horizontal curves and asymmetries in plan of Pisa cathedral.

The Portal-Sculptures on the Florence Cathedral. — FRIDA SCHOTT-MÜLLER in *Jb. Preuss. Kunsts.* 1909, pp. 291–302, finds that the plastic decoration of Arnolfo di Cambio's façade was not removed or altered by Talenti's restoration, between 1360 and 1420, and that later descriptions, drawings, and other representations are valid as evidence for the identification of Arnolfo's figures over the cathedral doorways. These figures are shown to be: the Madonna statue in the Cathedral Museum, which stood over the main portal; two pairs of angels in private possession in Florence; the Virgin and three mourning apostles from the *Dormitio Mariae*, which filled the lunette over the right-hand portal, now in the Kaiser-Friedrich Museum at Berlin; and the "Reclining Virgin," from the Nativity of the other lateral lunette, now in private possession at Florence.

An 'Annunciation' by Berna da Siena. — The frescoes of the New Testament which Berna da Siena painted in the Collegiata of San Gimignano, are mostly impregnated with the style of Duccio, but one of them, the Annunciation, shows strong resemblance to the works of Ambrogio Lorenzetti and Simone Martini. (LISA DE SCHLEGEL, *L'Arte*, XII, 1909, pp. 204–207.)

S. Restituta at Naples. — A. SORRENTINO in *Boll. Arte*, III, 1909, pp. 217–233, analyzes the evidence for the date of the basilica of S. Restituta at Naples. He finds that the testimony of the *Libri Pontificales*, both of the Roman and Neapolitan churches, is authoritative, the latter being found to be based upon actual monuments. From these sources we learn that the basilica was the first church erected at Naples, and that it was built by Constantine. This is supported by the classical style of the earlier mosaics in the baptistery.

The Epitaph of Pope Pontianus. — The discovery of the epitaph of Pontianus in the crypt of S. Cecilia has put a new face upon the question of the value to be assigned to the monogram MP in such epitaphs. This *siglum* appears in the epitaph of Fabian in the papal crypt, and is obviously a later addition to the original inscription ΦΑΒΙΑΝΟC · ΕΠΙ. De Rossi thought that it was inscribed after due process of examination into the merits of the bishop to the title — at the successful conclusion of which he received the title as a *martyr vindicatus*. This could scarcely be the case with Pontianus, who died in exile in 238, and whose body was brought back from Sardinia at least as late as 238, for after such a lapse of time his title would be unquestioned, and when the epitaph was cut, the epithet "martyr" would have been inscribed at the same time. The "martyr," however, both in the case of this epitaph and that of Fabian, was added later, and as there is nothing to lead us to suppose that it would have been done in the third century, it was doubtless an act of commemoration which occurred after the peace of the church. (O. MARUCCHI, *N. Bull. Arch. Crist.* 1909, pp. 35–50.)

FRANCE

Architectural Refinements in Amiens Cathedral.—In the *Journal of the Royal Institute of British Architects*, XVI, 1909, pp. 715-740 (14 figs.), W. H. GOODYEAR makes a detailed reply to the criticisms of Bilson in regard to his discovery of architectural refinements in Amiens cathedral, reaffirming and strengthening his original position.

The Romanesque Cloister at Cadouin.—In *M. Soc. Ant. Fr.* LXVIII, 1908, pp. 299-323, A. BABUT discusses the romanesque cloister at Cadouin (Perigord).

Proportions of French Sculptures of the Twelfth Century.—In *R. Arch.* XIV, 1909, pp. 75-93 (5 figs.) and pp. 216-249 (6 figs.), JEAN LARAN continues (cf. *A.J.A.* XII, 1908, p. 250; XIII, 1909, p. 236), and concludes his treatise on proportions in French sculpture of the twelfth century, discussing 'the conditions: the programme and technique.' In general, persons of importance and dignity are taller in proportion to their breadth than others. The heads of large figures are relatively smaller than those of small figures. The third dimension, thickness, cannot be so accurately studied, because Romanesque sculpture is seldom carved completely in the round. Real bas-reliefs are also very rare, sculpture being chiefly architectural, producing figures attached to buildings. The figures are cut in from the outside of the flat blocks, apparently without the use of clay models, and this accounts for their flat appearance. There seem to have been no fixed canons or formulae of proportions. In a few cases the work of an individual artist can be distinguished. Five schools (Burgundy, the Île de France, Provence, Auvergne, Languedoc) are distinguishable, though their limits are not clearly marked. In southern France Gallo-Roman traditions are preserved; in northern France Byzantine influence is strong. In the second half of the twelfth century these two tendencies neutralize each other, perhaps under the influence of the study of the living model. The study of numerical proportions is not the whole of the study of art and may not accomplish all that has been claimed for it by some of its devotees, but it furnishes definite criteria and serves to correct ocular illusions. More closely related groups of proportions are to be posited in (1) n statues by one artist than in n statues by different artists, in (2) n statues of one school than in n statues of different schools, in (3) n statues of one period than in n statues of different periods, in (4) n statues of one iconographic rôle than in n statues of different rôles, in (5) n statues of one monumental rôle than in n statues of different rôles, in (6) n statues of one scale than in n statues of different scales. These results are of general application.

The Author of the Altar-piece of Saint-Bertin.—In *Chron. Arts*, July 31, 1909 (reprinted in *R. Arch.* XIV, 1909, pp.) 287-290, PAUL DURRIEU gives reasons for ascribing the altar-piece of Saint-Bertin to Jean Hennechart, or Hennequart, who was valet de chambre and court painter to Philip the Good of Burgundy.

GERMANY

The Capitals in the Cathedral at Magdeburg.—*Jb. Preuss. Kunsts.* 1909, pp. 193-218 and 236-270, contains the concluding portions of R. HAMANN's articles on the capitals in the cathedral at Magdeburg, already noted in *A.J.A.* XIII, 1909, p. 525.

The Cologne Primitives. — In *R. Arch.* XIV, 1909, pp. 292 f., S. R. very briefly reviews the discussion concerning the paintings ascribed to Meister Wilhelm and the early school of Cologne. He evidently does not believe the pictures are, as has been asserted, so worked over as to be virtually modern, though he appears to think they have been somewhat retouched.

GREAT BRITAIN

Ludlow Castle. — In *Archaeologia*, LXI, 1908, pp. 257-328 (7 pls.; 28 figs.), W. H. ST. JOHN HOPE describes in detail the castle at Ludlow, Shropshire, partially as the result of excavations recently conducted by him. Colored plans showing the age of the different parts accompany the text.

The Round Church of the Knights Templars at Temple Bruer. — In *Archaeologia*, LXI, 1908, pp. 177-198 (3 pls.; 6 figs.), W. H. ST. JOHN HOPE reports upon his excavations at the round church of the Knights Templars at Temple Bruer in Lincolnshire in the spring of 1908. The plan of G. Oliver, based upon excavations carried on in 1832 and 1833, was found to need much correction. These early excavations must have been of a very superficial character. There was no "chamber with an immured skeleton" where Oliver thought he had found one, and the "horrible cavern" where he supposed human beings were burned was an old oven. The ground plan of the church has now been recovered.

RENAISSANCE ART

GENERAL AND MISCELLANEOUS

New Rembrandts. — In *Z. Bild. K.* 1909, pp. 1-8, W. BODE describes a number of the paintings of Rembrandt that have come to light within the last three years. The most important of these are David presenting the Head of Goliath to Saul, in the Heinemann Gallery at Munich; Portrait of a Man, in the collection of A. de Ridder at Cronberg; a Portrait of a Woman, in the collection of O. Huldschinsky at Berlin; a Descent from the Cross, belonging to Fr. Kleinberger at Paris; a Study of an Old Man, in the Kappel collection at Berlin; and a Portrait of a Scholar, belonging to L. Koppel of the same city.

Dürer's Portraits of Himself. — L. REAU in *Gaz. B.-A.* II, 1909, pp. 103-120, discusses the "auto-portraits" of Dürer. The series begins with a drawing in the Albertina at Dresden, with an inscription by the artist himself, telling us that he made the portrait at the age of thirteen. His likeness, when an apprentice in Wolgemut's studio, is preserved to us by a figure which he painted in one of the wings of the Peringsdörffer altarpiece (1487). The Dürer of the *Wanderjahre* is revealed by the very dramatic pen-drawing in the library at Erlangen (1492). The portrait in the old Goldschmidt collection, now belonging to M. de Villeroy, is probably the one sent by him to his fiancée Agnes Frey at Nuremberg. In the Prado-portrait we have Italian influence, and in the ideal head at Munich (*ca.* 1506), we have his features assimilated to Dürer's theoretical male type. After this, his visage appears only as a detail in a picture or drawing, save in one curious drawing at Bremen, depicting him ill and nude, save for a loin-cloth,

and pointing at a yellow patch on his left side, evidently a sketch sent to some physician to indicate the region affected.

ITALY

Jacopo dal Casentino.—H. P. HORNE contributes to *Rivista d' Arte*, 1909, pp. 95–112, a commentary on Vasari's life of Jacopo dal Casentino. The frescoes on the vault of Or San Michele ascribed to Jacopo by Vasari were painted between 1398 and 1401 and could hardly have been done by Jacopo, who was in his prime in 1339. Moreover, there is documentary and other evidence to show that Vasari has confused Jacopo dal Casentino with the painter Jacopo Laudini, who lived ca. 1400.

Michelangelo's Leda.—L. T. BORDONARO in *Boll. Arte*, III, 1909, pp. 307–315, traces the history of the Leda which Michelangelo made for Alfonso of Ferrara, and brings out the fact that not only the original went to France, where it was destroyed in the seventeenth century, but also the cartoon, from which a copy was made by Benedetto da Bene. The Leda of the National Gallery may be identical with da Bene's copy. If Michelangelo's model was an antique Leda, he must have used the latter first in making the Night for the Medici tombs, for the pose is the same as that employed in the Leda.

The Head by Michelangelo in the Possession of Aretino.—A letter of Aretino speaks of a clay head of St. Cosmas or Damian by Michelangelo, and A. GOTTSCHIEWSKI shows by the citation of a passage in Vasari's *Life of Michelangelo* that this was a veritable work by the master, and afterward belonged to Vasari himself. (*Mh. f. Kunstu.* II, 1909, p. 399.)

New Documents on Michelangelo and his Time.—K. FREY, in *Jb. Preuss. Kunsts.* 1909 (*Beihet*), pp. 103–180, adds a third installment to his 'Studien zu Michelagniolo Buonarroti und zur Kunst seiner Zeit,' the first two parts of which appeared in the same periodical for 1885 and 1895. The present article contains a vast number of new documentary evidences relating particularly to the David, the twelve marble statues for Florence cathedral, the *Sala del Consiglio Grande*, and the building of St. Peter's.

Sebastiano del Piombo and the "Stanze di Raffaello."—M. WACKERNAGEL finds that the group on the right of the Miracle at Bolsena shows the coloring of a Venetian hand, and thinks that Sebastiano del Piombo was Raphael's assistant here, and also in the Decretals. (*Mh. f. Kunstu.* II, 1909, pp. 319–328.)

The Pseudo-Boccaccino.—Another study of the Pseudo-Boccaccino (see *A.J.A.* XIII, p. 532) is made by G. FRIZZONI, who undertakes in *Rass. d' Arte*, IX, 1909, pp. 127–132, to reconstruct his artistic personality. His name is unknown, and his works are often confused with those of Boccaccio Boccaccino of Cremona. He assigns to him the Madonna in the Crespi gallery at Milan; the Holy Family in the Fontana collection at Turin; a Portrait of a Girl belonging to the Del Majno family in Milan; the Zingarella in the Pitti; an Adoration of the Shepherds belonging to Dr. Müller-Walde; an Adoration of the Magi in the Brera; the Madonna with St. Sebastian in the Pinacoteca Estense at Modena; Sts. Mary and Martha in the Verona gallery; and a Madonna with an Angel in the Cagnola collection at Milan.

A Melozzo Controversy.—In *Boll. Arte*, III, 1909, pp. 281–287, G. CANTALAMESSA gives a new and accurate reproduction (Fig. 6) of the Annunciation recently discovered in the Pantheon (see *A.J.A.* 1909, p. 529) and assigned to Antoniazzo Romano, from which it appears that the work is an excellent example of Melozzo da Forlì. He supports the new attribution by comparison of various details with other works of Melozzo. In like manner the St. Sebastian with donors recently acquired by the National (Corsini) Gallery at Rome, which has been assigned to Antoniazzo Romano by Jacobsen and also by Everett (see *A.J.A.* 1907, p. 296), is defended as a work of Melozzo's by LISA VON SCHLEGEL in *L' Arte*, XII, 1909, pp. 307–313. A. SCHMARROW, on the other hand, writing in *Mh. f. Kunstw.* II, 1909, pp. 497–503, rejects both of these attributions. The Pantheon fresco he assigns to Antoniazzo, and argues that the resemblances to Melozzo's style in the St. Sebastian are to be explained by assuming that Melozzo commenced the figure of the saint, which was finished together with the donors, after his departure from Rome, by Antoniazzo. The portrait in the Faenza in which ANTONIO MUÑOZ recently attempted to trace the hand of Melozzo is assigned by Schmarsow to some eclectic combining the Venetian style of Bellini and the local art of the Romagna. The same *milieu* produced the two paintings which CORRADO RICCI recently added to the Uffizi under the name of Melozzo. In *Rass. d' Arte*, IX, 1909, October, pp. iii–iv, G. BERNARDINI defends his original attribution of the Pantheon Annunciation and the St. Sebastian to Antoniazzo. M. PERNOT, in *Chron. Arts*, 1909, pp. 248–249, considers the Pantheon fresco too good for Antoniazzo, but expresses some doubts as to the possibility of assigning it to Melozzo.

Federigo Barocci.—In *Abh. Sächs. Ges.* XXVI (No. 4), 1909 (168 pp.; 13 pls.), AUGUST SCHMARROW discusses the development and the works of Federigo Barocci of Urbino (apparently 1526–1612). He finds that he was an artist of great individuality and originality, by no means a mere imitator or mannerist. He stands between Michael Angelo and Rubens in the history of the development of the barock style. *Ibid.* No. 5 (40 pp.), the same author describes and discusses Barocci's drawings in the Uffizi at Florence.

Benedetto Bonfigli.—W. BOMBE in *Rep. f. K.* XXXII, 1909, pp. 231–246, finishes his monograph on the Umbrian artist Benedetto Bonfigli. He was closely wrapped up in Sienese art at the beginning of his career. Naturalism and perspective he learned from Domenico Veneziano, Piero della Francesca, and Filippo Lippi. He was probably in Rome about 1450 and there doubtless met Fra Angelico, whose influence, together with that of Benozzo Gozzoli, is manifest in his later works. Another characteristic of his later period is the change from a light to a darker, brownish color-scheme. He was the last of the old Umbrian school, unable to keep step with the new art introduced by Fiorenzo and Perugino.

The Sienesque in Umbrian Painting.—In *L' Arte*, XII, 1909, pp. 188–202, A. VENTURI undertakes to show the strong influence of Siena on the Umbrian quattrocentists, and to analyze the artistic development of Fiorenzo di Lorenzo. Giovanni Boccati del Camerino was the follower of neither Filippo Lippi, Gozzoli, Piero della Francesca, Gentile da Fabriano, nor Domenico Veneziano, but drew almost entirely from the Sienese Domenico di Bartolo. In the same way Sano di Pietro was the inspiration



FIGURE 6.—ANNUNCIATION IN THE PANTHEON.

of Matteo da Gualdo. A similar coincidence is manifest between the works of Niccolò Alunno and Matteo di Giovanni, but both derived their fantastic details from the Venetians. Benedetto Bonfigli again had little to do with the Florentines, and most of his peculiarities can be paralleled in the Sienese. Sienese influence, drawn through the medium of Niccolò Alunno and Bonfigli, was the determining factor of Fiorenzo di Lorenzo's art. He had scarcely attained to a manner of his own, when Perugino's art attracted him and his later works are unsuccessful attempts to assimilate the breadth and grandeur of the greater master.

The Holy Family in Gemona. — A document of 1510 records a contract of the Confraternity of St. Leonard in Gemona with the painter Gianfrancesco da Tolmezzo to paint for them an altar-piece "better than the St. Joseph he painted for S. Maria delle Grazie," from which it would be supposed that the Holy Family and St. Elizabeth, the only picture answering to this description which exists in S. Maria delle Grazie, must be by the hand of Gianfrancesco. But his known pictures are Squarcionesque, and it has been suggested that the original picture is gone and that the existing one is a substitution. L. VENTURI in *L'Arte*, XII, 1909, pp. 211-215, argues that the evidence of the document holds, and that the known pictures by the painter represent his earlier period, while the Gemona Holy Family belongs to his later work under the influence of the Vicentine school.

The New Pinacoteca Vaticana. — The most important pictures, from the historical point of view, which form part of the new Pinacoteca Vaticana, are discussed by G. BERNARDINI in *Rass. d'Arte*, IX, 1909, pp. 89-94 and 113-120. The gallery is interesting chiefly for the following early pictures: a Crucifixion and Saints of the school of Giotto; a Madonna, by Bernardo Daddi; a Virgin and Saints, by Giovanni del Biondo; a Legend of St. Stephen, one of a series of eight fragments of a predella, by a Siennese Giottesque; a Madonna and Female Saints, and a Christ before Pilate, by Pietro Lorenzetti; a Crucifixion, by a follower of Lippo Memmi; a Nativity, by Giovanni di Paolo; and a Miracle of St. Nicholas, by Gentile da Fabriano.

Attributions in the Querini Stampalia Gallery at Venice. — The second of E. JACOBSEN's articles on the Querini Stampalia pictures appears in *Gaz. B.-A.* II, 1909, pp. 216-236. In the course of this, he assigns the Judith, catalogued as Palma Vecchio, to Catena, quoting the description of a similar picture by Catena in Ridolfi's *Meraviglie dell'arte*. The Virgin adoring the Child, catalogued as of the Lombard school, is a certain work of Lorenzo di Credi. The Santa Conversazione, ascribed to Titian's school, is by Beccaruzzi. The unfinished portrait of a young woman probably represents Paola Priuli, the bride of Francesco Querini, and was painted by Palma Vecchio. The companion piece to this picture is the male portrait in the same gallery, which is sometimes assigned to Giorgione, but is to be considered the portrait of Francesco Querini, done by Palma. The article terminates with an argument in favor of giving to Palma Vecchio the Tempest calmed by St. Mark, which has also been attributed to Giorgione.

Attributions in the Palermo Gallery. — C. MATRANGA contributes to *Boll. Arte*, III, 1909, pp. 340-351, a discussion of the authorship of certain pictures in this gallery. The Pentecost, attributed to Perugino at first and by Di Marzo to Pietro Ruzzolone, is the work of an unknown cinquecento painter of the Messina school, who was also the author of the Dispute of St.

Thomas Aquinas and a number of other works. The recently acquired Madonna with Sts. Leonard and Roch belongs to the work of Vincenzo di Pavia, of which the museum possesses other examples.

A Catalogue of Tuscan Statuettes. — C. VON FABRICZY publishes in *Jb. Preuss. Kunsts.* 1909 (*Beiheft*), pp. 1-85, a catalogue raisonné of the terracotta and wood statuettes of Tuscany from 1300 to the early cinquecento. The catalogue is arranged according to the three schools of Pisa, Florence, and Siena, and within these divisions the statuettes are given according to their present location. The catalogue is followed by an index of artists.

Three Reliefs by Sansovino. — Three bronze reliefs each representing Christ in glory, sustained together with His cross by putti, and all ascribed to Sansovino, are the subject of an article by G. LORENZETTI in *L' Arte*, XII, 1909, pp. 288-301. One is on the door of the ciborium of the altar of St. Anthony in St. Mark's at Venice, another in the Bargello, and the third in the Kaiser-Friedrich Museum at Berlin. While the first two are indubitably Sansovino's work, the third is believed by the author to be an imitation of the sculptor's model by one of his contemporaries or an artist of somewhat later date.

The Tomb of Paul III in St. Peter's. — K. ESCHER traces the history of the tomb of Paul III in St. Peter's in *Rep. f. K.* XXXII, 1909, pp. 302-320. Fra Guglielmo della Porta received the commission in 1550 from Cardinal Alessandro Farnese. His original design was for a free-standing monument, and consisted of a great stone block with a chamber for the sarcophagus, two bronze cenotaphs, four allegorical figures of marble, four corner-statues, and eight *termini*. The upper part consisted of a bronze base with reliefs, and the colossal statue of the Pope. Then followed proposals of reductions of various kinds through the intervention of Paciotto, Michelangelo, and Annibale Caro, and Michelangelo finally succeeded in having the tomb set up in the niche of St. Andrew, which necessitated the reduction of the allegories to half their number. When finally inaugurated in 1585, it retained only the four corner-figures, the sculptured bronze base, the colossal statue, and the four allegories. In 1628, Urban VIII transported the monument to the left niche of the choir-tribunal, at which time the statues of Abundance and Peace, the bronze vase, and two corner-figures were removed.

A Letter of Benvenuto Cellini. — In *Mél. Arch. Hist.* XXIX, 1909, pp. 225-232, C. COCHIN publishes and comments upon a letter written November 18, 1553, by Benvenuto Cellini to Bernardo Salviati, bishop of San Papolo in Venice. In this Benvenuto describes a salt-cellar he had made. It was of oval form, supported by four children, and on the cover was Venus with Cupid asleep on her breast. Probably this is the salt-cellar begun for Cardinal Salviati, in part payment for which Benvenuto received 100 crowns in 1549 from the Cardinal of Ravenna.

The Farnese Palace in 1653. — In *Mél. Arch. Hist.* XXIX, 1909, pp. 145-198 (5 pls.), P. BOURDON and R. LAURENT-VIBERT give an account of the palazzo Farnese and its contents as described in two manuscripts now in the Archivio di Stato at Parma. These are inventories which belonged in the eighteenth century to Moreau de St. Méry. They were drawn up by B. Faini, April 1st, 1653.

SPAIN

Philippe de Bourgogne.—Philippe de Bourgogne was a sculptor of French origin, whose career was in Spain. Shortly after 1502 he carved the retable in the royal chapel at Granada. He made the choir-stalls of Burgos between 1507 and 1512. In 1536 he undertook the sculptures of the choir of Burgos cathedral, and after completing these, was commissioned to plan and decorate the new transept. The stalls of Toledo were undertaken in 1540, and are signed both by Philippe and by Berruguete. (P. LAFOND, *Burl. Mag.* XV, 1909, pp. 285-297.)

FRANCE

Franciscan Iconography in France.—An article by E. BERTAUX in *Gaz. B.-A.* II, 1909, pp. 135-162, takes the form of a review of E. Mâle's *L'Art religieux de la fin du Moyen Âge en France*, and disagrees with the latter's thesis in one important particular. Bertaux agrees with Mâle that the transformation in Christian iconography which had been completed by the beginning of the fifteenth century had its ultimate origin in the apocryphal "Lives of Jesus and Mary," which issued from Franciscan sources, and that these writings also inspired the "Mysteries" of the fourteenth century; but he shows that the earlier changes in the representations of the Passion in French art were directly borrowed from Italy, and not from the "Mysteries."

The "Hours" of Anne of Brittany.—In *Gaz. B.-A.* II, 1909, pp. 177-196, F. DE MÉLY attacks the attribution of the miniatures of the book of Hours of Anne of Brittany to Jean Bourdichon, basing his argument chiefly on inequalities in the style, an entry in the accounts of the queen, which notes the payment of Jean Poyet for a manuscript of about the same number of miniatures, and the signature *J.* on the first miniature, which he regards as a Grecized monogram for I[ehan] P[oyet].

GERMANY

The Saint-Bertin Altar-piece.—Two wings of the Saint-Bertin altarpiece now in the Berlin Gallery have been attributed to Memling and again to Simon Marmion. From documentary evidence, as well as the resemblance of the pictures to certain miniatures in the *Education of the Prince*, the manuscript No. 5104 in the Library of the Arsenal, P. DURRIEU concludes that the Berlin panels must be assigned to Jean Hennecart, who is undoubtedly the author of the miniatures. (*Chron. Arts*, 1909, pp. 216-218.)

Meister Hans Seyfer of Heilbronn.—A reconstruction of the life and work of Meister Hans Seyfer of Heilbronn (d. 1509), the author of the famous group (now destroyed), of the Mount of Olives at Speyer, and now recognized to be the creator of the high altar in the Kilians-kirche at Heilbronn, is given by M. VON RAUCH in *Mh. f. Kunstw.* II, 1909, pp. 503-528.

Benedict Dreyer.—*Jb. Preuss. Kunsts.* 1909, pp. 271-281, contains a résumé of the work of Benedict Dreyer, a wood-sculptor of Lübeck in the early sixteenth century, with a catalogue of his works.

The Chronology of Grünewald.—H. A. SCHMID tabulates the principal works of Grünewald in chronological order as follows: 1505, The Crucifixion

in Basel; ca. 1509, the Frankfort pictures and the altar-piece in Colmar; in his later period, the altar in Aschaffenburg, the Madonna in Steppach, and the Freiburg altar-piece wing; ca. 1522, the Crucifixion and Christ bearing the Cross, in Karlsruhe; 1524–1525, the predella in Aschaffenburg, and the Mauritius and Erasmus in Munich. The pictures for Mainz cathedral seem to have been done in part before 1525. He died about 1529. (*Rep. f. K.* XXXII, 1909, pp. 412–414.)

GREAT BRITAIN

A Minerva by Cellini.—A bronze statuette representing Minerva (Fig. 7) is published in *Burl. Mag.* XVI, 1909, pp. 40–49, by F. W. LIPP-

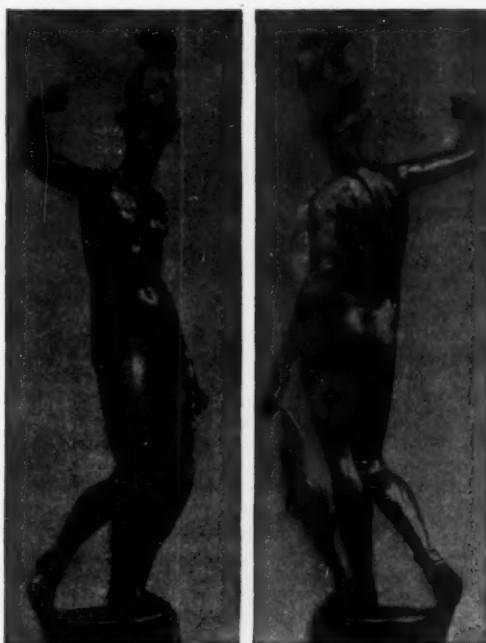


FIGURE 7.—MINERVA BY CELLI NI.

MANN. He assigns it to Benvenuto Cellini on the ground of its resemblance to many of his figures, and particularly to the Minerva on the base of the Perseus monument at Florence. The editor adds a note to Lippmann's article, pointing out that Cellini was commissioned by Francis I to model twelve silver statues of divinities to serve as candelabra. Only one was completed, but Cellini speaks of having done the wax models for four, Jupiter, Juno,

Apollo, and Vulcan, and the Minerva may have been modelled at the same time. The statuette is in private possession in London.

The Judgment of Solomon. — The Judgment of Solomon, well known since its attribution to Giorgione by Herbert Cook, is assigned to Catena by R. E. FRY in *Burl. Mag.* XVI, 1909, pp. 6-9, on the ground that the color-scheme and types are identical with those of Catena's works, particularly the Supper at Emmaus at Bergamo, and the Adoration of the Shepherds in Earl Brownlow's collection.

AMERICAN ARCHAEOLOGY

A Cast in the Smithsonian. — In *American Anthropologist*, N. S. II, 1900, pp. 348-358, J. WALTER FEWKES discusses the origin of a hitherto undescribed cast in the Smithsonian collections and its identification. The original is No. 12017 in the Academy of Natural Sciences of Philadelphia. It is a human kneeling figure thirteen and a quarter inches in height and carries a peculiar "pedestal" or "canopy" on its head. From the presence of this "canopy" the carving of the face, the form of the ears and their appendages, the enlargements on the arms and the character of the backbone, and for other reasons, the author concludes that its characteristics are those of the Antillean or Tainan culture. It is possible that the "canopy" was a "Tabla," on which were placed offerings for the idol beneath it.

The Dance in Hawaii. — In *Bulletin* 38 of the Bureau of American Ethnology (288 pp.; 24 pls.; 3 figs.), N. B. EMERSON discusses the unwritten literature of Hawaii and the sacred songs of the *hula* or dance. It is in general an extended contribution to our knowledge of Polynesian ethnology. The words and music, the dances, the poses and gestures, the symbolism and the history and traditions of the Hawaiian ceremonies are set forth at length and descriptions given of the musical instruments used. Of interest perhaps to classical archaeologists in music is the paragraph on page 148: "With the assistance of a musical friend it was found that the old Hawaiian tuned his strings with approximate correctness to the tonic, the third and the fifth," and the following comparison that the author makes with the method of tuning proposed by Aristoxenus.

Putnam Anniversary Volume. — A volume presented to Professor Frederick Ward Putnam, of Harvard University contains the following articles: Pp. 1-42, A. L. KROEBER discusses 'the Archaeology of California,' describing the southwestern, the northwestern, and the central cultures. He establishes two types of comparatively ancient pottery. Pictographs are comparatively rare. The writer believes that man lived in California at a very remote period. — Pp. 43-82, J. WALTER FEWKES discusses 'Ancient Zuñi Pottery.' The collection on which the study is based is the Hemenway Collection in the Peabody Museum in Cambridge. The conclusion reached is "that the ancient culture of the Zuñi valley was almost identical with that of the rest of the Little Colorado drainage, implying that the modern Zuñi culture contains elements due to acculturation from the north and northeast." — Pp. 83-101, CHARLES C. WILLOUGHBY discusses the 'Pottery of the New England Indians.' He distinguishes three divisions: the archaic Algonquian, the later Algonquian, and the Iroquoian. The antiquity of the first is considerable; the vessels have a pointed base for use in inserting

the vase into soft earth; the Iroquoian vessels were furnished with rims suitable for suspension and with rounded bases; the later Algonquian type was a combination of the older and of the Iroquoian. Numerous remains of the Iroquoian type in Vermont in the Champlain drainage basin point to an occupancy of that region by Iroquoian tribes. — Pp. 102-125, WILLIAM C. MILLS discusses the 'Seip Mound.' The group of earthworks of which the Seip Mound is a part is situated in Ross County, Ohio. It was a monument to the dead erected on the site of a charnel house, in which burials were made of cremated bodies. Some uncremated burials of a less carefully prepared type were found at a higher level in the mound. Intertribal trade is shown by the finding of copper from the Lake Superior region, ocean-shells and alligator teeth from the South, and mica from North Carolina. The builders of the mound were pre-Columbian and "belonged to the highest culture of aboriginal man in Ohio." — Pp. 126-136, CHARLES W. MEAD discusses 'The Fish in Ancient Peruvian Art.' Designs in fish-form occur in all the arts of the prehistoric peoples of Peru, on textiles, pottery, and gourds. They vary from the fairly realistic to the extreme of conventionalism, and occur in various combinations. No historical sequence of conventionalization is attempted. The author says "that the theory of development by degeneration seems the most natural one." — Pp. 137-150, WARREN K. MOOREHEAD contributes a 'Study of Primitive Cultures in Ohio.' He distinguishes three cultures: the Glacial Kame Culture, the Hopewell Culture, and the Fort Ancient Culture. The first belonged to an early people who used the mounds of glacial gravel for burial places; the second was peculiar to a tribe or tribes, possibly of southern origin and brachycephalic and of a sedentary nature; the third is of uncertain origin and belonged to a people with long heads. Both the Hopewell and the Fort Ancient peoples built elaborate earthworks which were probably the result of a long process of development. — Pp. 151-190, MARSHALL H. SAVILLE discusses 'The Cruciform Structures of Mitla and Vicinity.' He describes the explorations of five cruciform structures at or near Mitla, Oaxaca, Mexico. Decoration of the walls in mosaics, the pattern of which is formed by projecting stones, is a feature; much of this has been defaced, possibly by the Indians themselves, "who have a belief that stones or fragments taken from the buildings will, sooner or later, turn to gold." The writer connects the form of the cross with the worship of Quetzalcoatl, proving "the widespread range of the Nahuan pantheon." — Pp. 191-195, GEORGE BYRON GORDON discusses 'Conventionalism and Realism in Maya Art at Copan, with Special Reference to the Treatment of the Macaw.' Two figures representing the head and especially the beak of this bird are given; the first, from Stela B, showing a strong tendency to exaggerate, and the other, from the Hieroglyphic Stairway, being a much more successful attempt at realistic portrayal; the stairway represents to the writer an attempt to get away from the trammels of tradition and conventionalism. — Pp. 196-252, GEORGE H. PEPPER discusses the 'Exploration of a Burial-Room in Pueblo Bonito, New Mexico.' Though the primary purpose of this room may not have been that of burial, the amount and value of the jewelry and other objects found with the skeletons point to the rank, probably ecclesiastical, of those buried within the walls. Among the articles found were wooden flageolets, "ceremonial sticks" of

differing forms, jars and bowls of pottery, and pendants and beads of turquoise. Noteworthy is a cylindrical basket, which, as restored (pl. IV, 1), is six inches long, and three inches in diameter, covered with a mosaic of turquoise. The burials discovered date from the highest development of the aesthetic arts of the inhabitants of this famous Pueblo in the Chaco Cañon.—Pp. 253-267, ALICE C. FLETCHER discusses 'Tribal Structure: a Study of the Omaha and Cognate Tribes.' Descent in the Omaha gens was traced only through the father; but it was through the mother that the child extended his kinship beyond the gens into that of a great community.—Pp. 268-298, CHARLES P. BOWDITCH discusses 'The Dates and Numbers of Pages 24 and 46 to 50 of the Dresden Codex,' and finds that the break in the Dresden Codex is not a necessary assumption, in this differing from the conclusions of Förstemann; in certain of the intricate numerical calculations of the calendar system he finds himself at variance with previous results.—Pp. 299-343, ALFRED MARSTON TOZZER discusses the 'Religious Ceremonials of the Navaho.' The Navaho, according to their own legends, obtained much of their culture from the cliff-dwellers found inhabiting the pueblos now deserted; as the present Pueblo peoples are probably descended from those cliff-dwellers, the culture of the extant pueblos is an inheritance, while that of the Navaho must be considered in some part a borrowing. After the first borrowing, however, the Navaho showed great originality in development; this is especially seen in the famous sand paintings where all, except the bare idea of making pictures in different colored sand, was their own.—Pp. 368-384, ZELIA NUTTALL discusses a 'Curious Survival in Mexico of the Use of the Purpura Shell-fish for Dyeing.' The writer found at Tehuantepec a survival of the practice of extracting dye from a species of sea-snail allied to the classical murex of the Mediterranean. This adds one more to the list of resemblances between the ancient civilizations of the eastern and western worlds, and the writer sees justification at least for those who prefer the theory of contact to the theory of psychic unity for the origin of the higher American civilizations.—Pp. 385-394, PLINY EARLE GODDARD discusses 'Gotal, a Mescalero Apache Ceremony.' An account of this ceremony relating both to female adolescence and to creation-traditions was obtained from Trias, the last priest of the chief rites of the ceremony in 1906. Numerous songs were sung and ceremonies in which pollen plays a large part were accomplished.—Pp. 395-404, S. A. BARRETT discusses 'The Cayapa Numeral System.' The Cayapa Indians of northwestern Ecuador count by using a series of basal numbers; these are 1, 2, 3, 5, 10, 20, and 100; the last serves also for the thousands.—Pp. 405-426, ALES HRDLIČKA discusses the 'Stature of the Indians of the Southwest and of Northern Mexico.' The writer presents statistical information about the stature and also the cephalic indices of many Indian tribes. The statistics do not bear out any theories of the influence of climate on stature; heredity and food-supply appear to be the strongest determining influences.—Pp. 427-460, FRANZ BOAS presents 'Notes on the Iroquois Language.'—Pp. 461-476, ROLAND B. DIXON presents the 'Outlines of Wintun Grammar.'—Pp. 477-486, JOHN R. SWANTON presents a 'New Siouan Dialect.' These are linguistic monographs dealing with three examples of linguistic stocks independent each of the other. They are illustrated with texts and paradigms.—Pp. 487-520, HARLAN I. SMITH discusses 'Prim-

itive Industries as a Normal College Course.' The author describes in detail a course of lectures on the evolution of industries given recently in the Department of Domestic Art in the Pratt Institute in Brooklyn.—Pp. 521-544, GEORGE A. DORSEY describes 'A Visit to the German Solomon Islands.' Both natives and landscapes of these "Cannibal Islands" are more pleasing than one would naturally expect.

The book contains also the following articles not connected with American Archaeology: Pp. 344-367, 'Certain Quests and Dates,' by CHARLES PEABODY; pp. 545-566, 'The Pillars of Hercules and Chaucer's "Trophee,"' by G. L. KITTREDGE; pp. 567-583, 'The Irish Practice of Fasting as a Means of Distraint,' by F. N. ROBINSON; pp. 584-600, 'Dusares,' by C. H. Toy.—Pp. 601-627, FRANCES H. MEAD presents a bibliography of the works of Professor Frederick Ward Putnam. It contains 404 titles, ranging in date from 1855 to 1909; in addition is a list of his Editorial Labors.

[*Putnam Anniversary Volume. Anthropological Essays presented to Frederick Ward Putnam in honor of his seventieth birthday, April 16, 1909, by his friends and associates.*—627 pp.; portrait; 41 pls.; 57 figs. Lex. 8vo. New York, 1909; G. E. Stechert & Co.]

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* * Books, pamphlets, and other matter for the Bibliography should be addressed to Professor WILLIAM N. BATES, 220, St. Mark's Square, Philadelphia, Pa.

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